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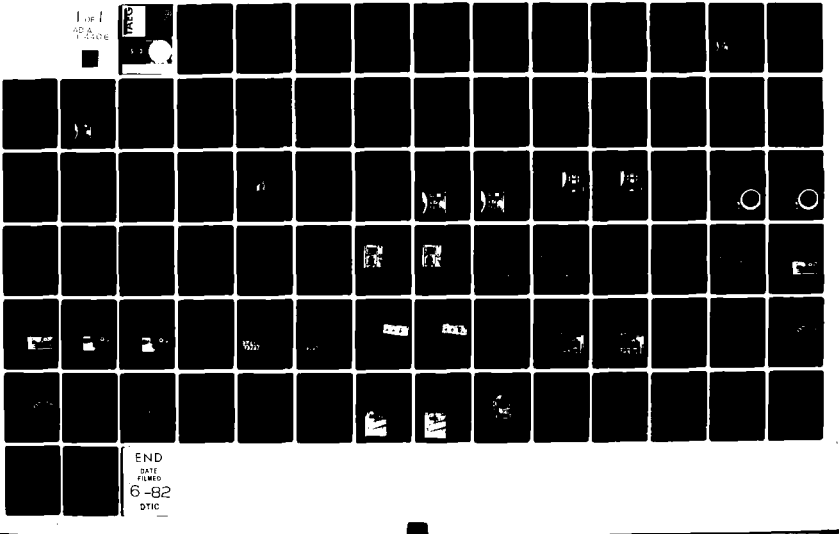

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TECHNICAL MEMORANDUM 82-2

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A GUIDE FOR PREPARING PROCEDURE TRAINING AIDS

FEBRUARY 1982

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ORLANDO, FLORIDA 32813

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Technical Memorandum 82-2

A GUIDE FOR PREPARING PROCEDURE TRAINING AIDS

William R. Terrell

Training Analysis and Evaluation Group

February 1982

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This report presents a blueprint for constructing procedural training aids (PTAs). The package is designed for use by subject matter experts and does not require the support of graphic artists or instructional designers.

(continued)

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20. ABSTRACT (continued)

The report:

- describes the materials and equipment needed
- gives directions for preparing PTAs.

An example of a PTA developed by a subject matter expert in a field setting using the TAEG guidelines is included.

TABLE OF CONTENTS

LIST OF ILLUSTRATIONS

SECTION I

INTRODUCTION

A Procedure Training Aid (PTA) is a type of instructional material designed by the Training Analysis and Evaluation Group (TAEG) to guide a student in learning to perform equipment-related procedures from memory or with a simple checklist. This type of instructional material has been formally evaluated.[1,2] The evaluations essentially found that proficiency in learning procedural tasks was achieved in significantly less time when compared with traditional materials.

Since procedure learning is pervasive in Navy training, it is expected that instructional programs will benefit from employing the PTA technique in designing instructional materials.[3]

However, the potential for utilizing the PTA throughout Navy schools and training squadrons in those situations where production support resources are limited is diminished due to various difficulties. The PTA relies heavily on visual illustrations and graphic design for its effectiveness. The actual production of page layouts is tedious and time consuming. Also many instructors and subject matter experts (SMEs) do not have access to the graphic art and materials support required to design and produce PTAs. In view of these realities, a simplified guide was needed to facilitate the production of PTAs locally by SMEs.

In response to this need, TAEG developed a technique composed of guidelines, examples, and materials which enable SMEs to produce these learning aids without special graphics or instructional design support. The technique is described in the present report. It was field-tested at Helicopter Antisubmarine Squadron One (HS1), a fleet readiness squadron at Naval Air Station, Jacksonville, Florida. HS1 personnel demonstrated the effectiveness of the guidelines by locally producing the PTA for the Initial Control Setting of the AQS-13E SONAR in the SH-3H aircraft.

[1]Anne M. Polino and R. Braby. Learning of Procedures in Navy Technical Training: An Evaluation of Strategies and Formats. TAEG Report No. 84, 1980. Training Analysis and Evaluation Group, Orlando, FL 32813 (AD A084067).

[2]P. G. Scott, W. C. McDaniel, and R. Braby. Improved Procedures Training Through Use of Aids Developed From Learning Guidelines. TAEG Report No. 113, 1982. Training Analysis and Evaluation Group, Orlando, FL 32813.

[3]The Chief of Naval Education and Training (CNET) tasked the TAEG during 1981 to assist in incorporating the PTA into the new Procedures for Instructional Systems Development. The TAEG-designed format model was selected for inclusion in this current version (NAVEDTRA 110A of 18 September 1981).

PURPOSE OF THIS REPORT

This report presents a blueprint for constructing procedure training aids. The package is designed for use by SMEs and does not require the support of graphic artists or instructional designers. Emphasis is placed on explicit directions for each step in the sequence with accompanying examples. Master copies of repetitious directions and commonly used elements are provided. The result is a process that can be used in schools, training squadrons, and other local activities not supported with special instructional system development (ISD) resources (people and/or equipment).

ORGANIZATION OF THIS REPORT

In addition to this introduction, the report contains one other section and four appendices. Section II describes the materials and equipment needed and gives directions for preparing PTAs. Four types of pages are described: Information, Paraphrase, Road Map, and Paper Mock-up. Directions are included for (1) identifying common elements, (2) using copies of common elements as building blocks in constructing master pages, and (3) adding detailed equipment information to the master pages to complete the layouts. Appendices A, B, and C contain camera ready art for making self-adhesive boxes, darts, and directions to be used in constructing PTAs. Appendix D contains an example of a PTA developed by a subject matter expert in a field setting using the TAEG guidelines which are the subject of this report.

SECTION II

GUIDELINES FOR PREPARING PAGES OF THE PROCEDURE TRAINING AID

The Procedure Training Aid has four page styles which are repeated throughout the module: (1) Information Page, (2) Paraphrase Page, (3) Road Map Page, and (4) Paper Mock-up Page.

The Information Page contains the initial instruction for each step in the procedure. Included on the page are the illustrations and verbal information related to each step. Key words which the student should remember are underlined. The Paraphrase Page is an exercise following each Information Page. It is an exact duplicate of the Information Page except that all underlined words are replaced with blanks. The student is instructed to mentally fill in the blanks. Where unable, the student is directed to read the Paraphrase Page and to re-study the Information Page for those elements that could not be completed. The Road Map Page helps the student recall a chain of steps. Three to seven steps are connected by arrows and numbered in order of occurrence in the procedure. The student is instructed to trace the procedure and recall the action at each step. Then the student is instructed to use the mock-up, an enlarged overview of the equipment, to practice tracing the procedure without the aid of arrows or other information.

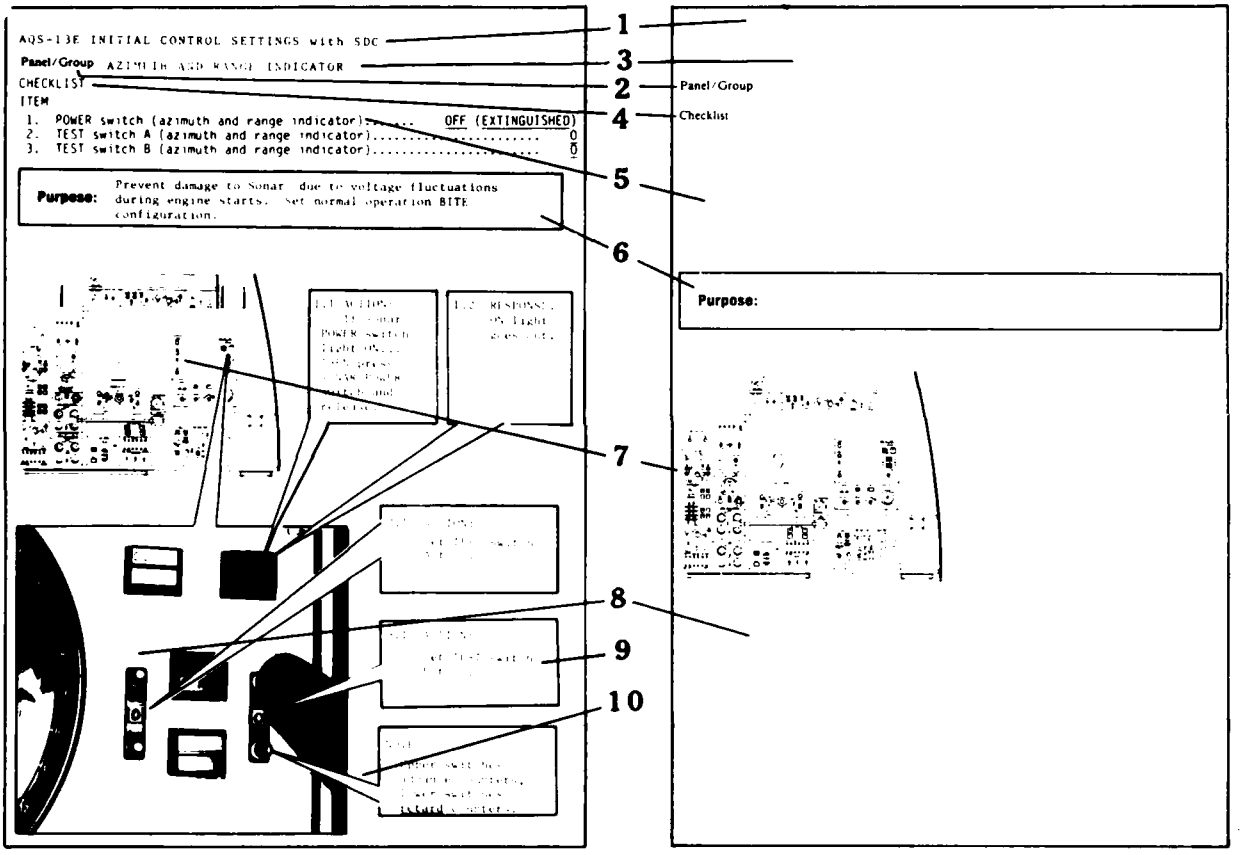
Each of the page styles has common elements which are repeated in each use of that type of page throughout the module. Mass-production of master pages including all common elements simplifies and speeds the authoring process and results in a more uniform appearing document. Guidelines for preparing and using master pages for each of the page styles are presented separately.

INFORMATION PAGE

The elements found on the Information Page and the procedure for preparing a master page are described next. Also included are suggestions on how to prepare materials which may be attached to master pages in order to simplify the authoring process.

Each Information Master Page (see figure 1) contains the following elements:

1. space for the title of the equipment
2. generic name for the sections of the equipment
3. space for the specific name of the section of the equipment discussed on this page
4. generic name for the steps of the procedure
5. space for the specific names of the steps of the procedure discussed on this page
6. box with space for the statement of purpose for the steps discussed on this page
7. overview illustration of the equipment



Information Page

Information Master Page

Figure 1. Elements of The Information Page

8. space for close-up illustration of the specific segment of the equipment discussed on this page
9. space for boxed information for each step or related note in the procedure discussed on this page
10. space for darts showing the relationships among steps or notes, overall illustrations, and close-up illustrations.

The author should prepare an Information Master Page which includes all of the common elements that are repeated on each Information Page throughout the Procedure Training Aid. Figure 1 illustrates the selection and arrangement of common elements on the Information Page.

An Information Page is developed for each step or group of steps in the procedure. All specific information required to complete these pages may be attached or typed directly onto the Information Master Page. For example, the close-up illustration of the specific section of the equipment discussed on this page is attached directly below the overall illustration. Steps and notes may be typed directly onto the Information Page and enclosed in individually drawn boxes. The procedure may be more efficient, however, if the steps and notes are typed onto pre-prepared and mass-produced boxes (see figure 2) which may be cutout and attached to the Information Page. This method permits the author to move the boxes about the page for best arrangement. Another advantage is that typing errors result in a discarded box rather than ruining a whole page. The procedure may be speeded by printing the boxes on self-adhesive label stock. See appendix A for a master copy for reproducing boxes.

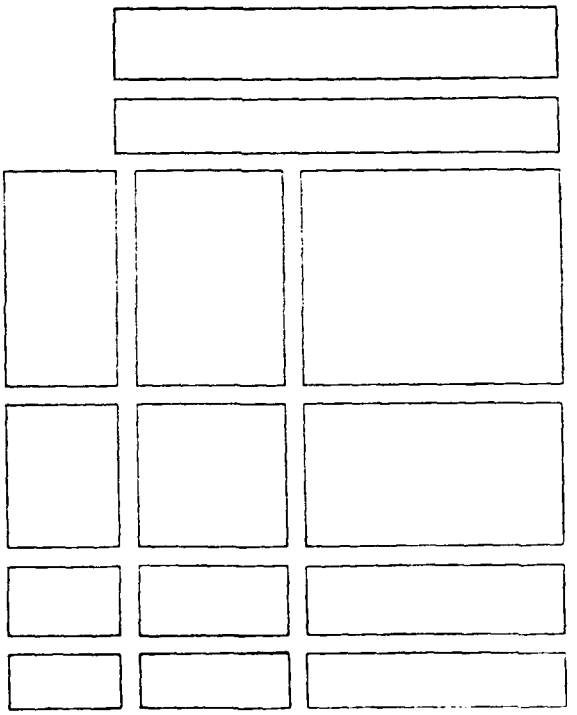


Figure 2. Boxed Spaces Page

Darts may be drawn directly onto the Information Page. Errors, however, would ruin the entire page. Pre-prepared and mass-produced darts (see figure 3) could be cutout as needed and attached to the Information Page. This method permits the author to move the darts about the page for the most effective alignment. This procedure may be speeded by printing the darts on self-adhesive label stock. See appendix B for the master copy for reproducing darts.

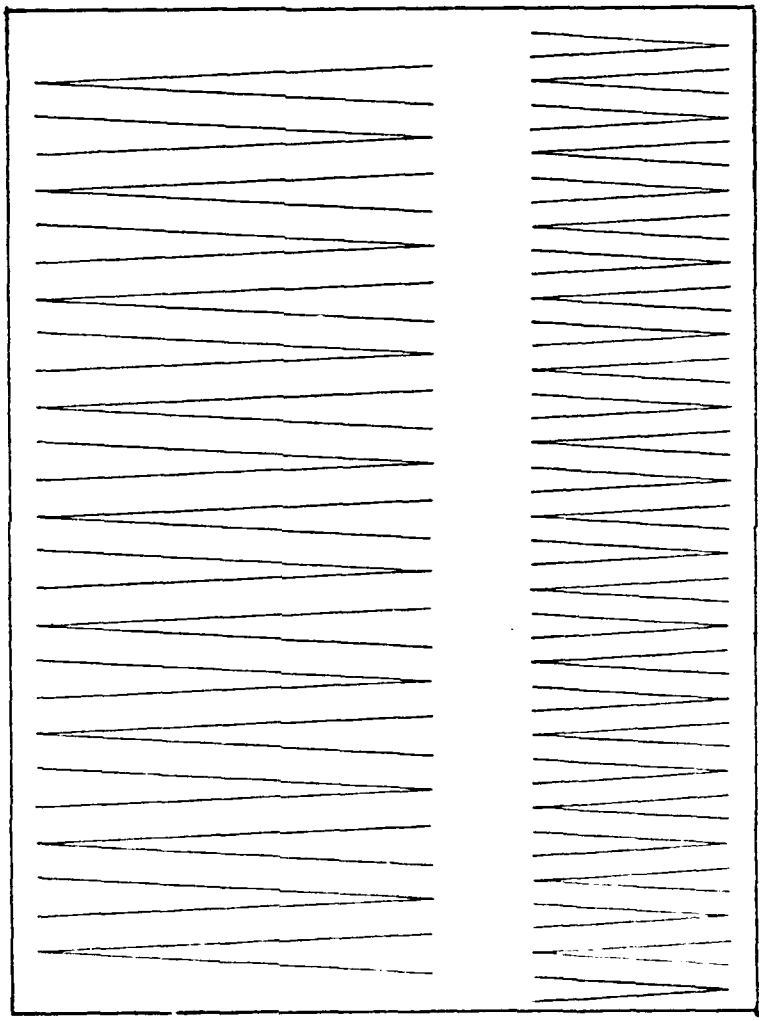


Figure 3. Dart Page

PARAPHRASE PAGE

The Paraphrase Page is a duplication of the Information Page except that all underlined words are eliminated (see figure 4). White self-adhesive correction tape, white typewriter correction fluid, and white acrylic paint are effective materials for eliminating underlined words from a copy of the Information Page.

AQS-13E INITIAL CONTROL SETTINGS with SDC

Panel/Group AZIMUTH AND RANGE INDICATOR

CHECKLIST

ITEM

1. POWER switch (azimuth and range indicator)..... OFF (EXTINGUISHED)
2. TEST switch A (azimuth and range indicator)..... 0
3. TEST switch B (azimuth and range indicator)..... 0

Purpose: Prevent damage to Sonar due to voltage fluctuations during engine starts. Set normal operation BITE configuration.

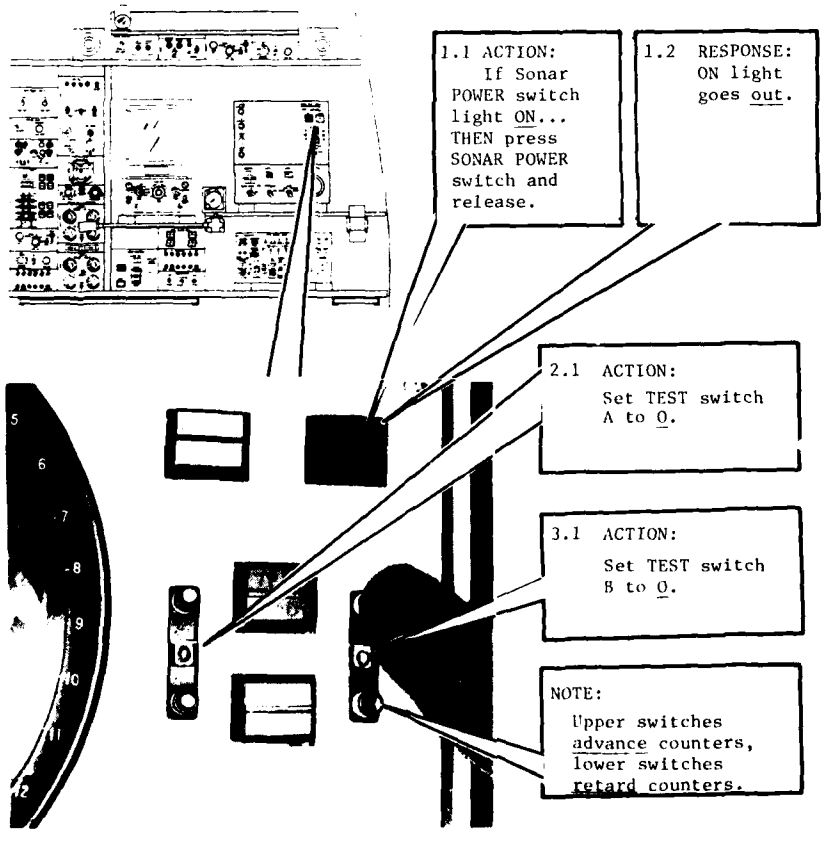


Figure 4. Paraphrase Page

ROAD MAP PAGE

Each Road Map Master Page (see figure 5) will contain the following common elements:

1. specific instructions on how to use the Road Map Page
2. space for a list of steps discussed on this page
3. space for an illustration of the section and the immediate context of the equipment within which the step would be performed
4. although not a common element, each Road Map will have a tracing of the steps to be performed
5. specific instructions to go to the mock-up and perform actions.

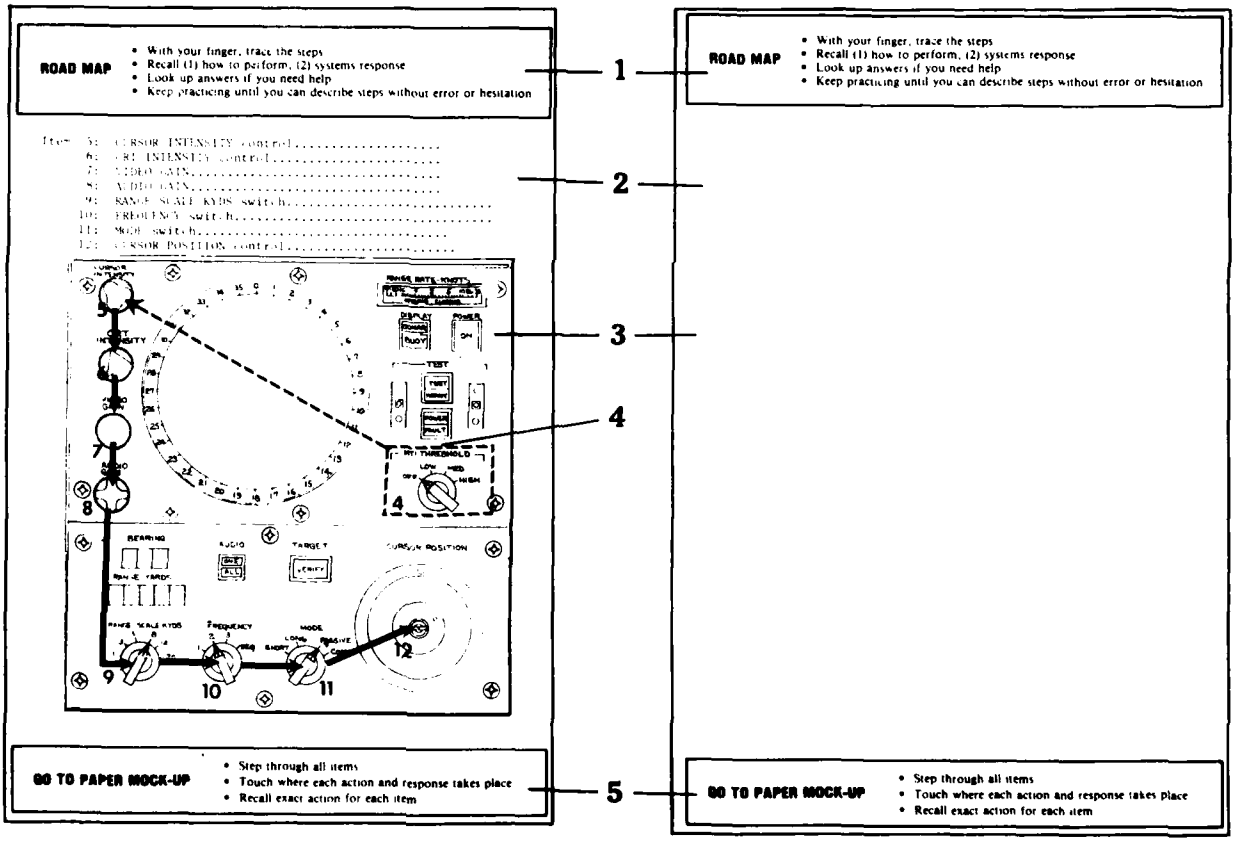


Figure 5. Elements of the Road Map Page

A Road Map Master Page is provided in appendix C. The master page includes all elements repeated throughout the Procedure Training Aid. The list of steps may be typed directly onto the Road Map Page and the photograph or drawing of the illustration may be attached directly onto the Road Map Page. The last step from the previous Road Map Page should be indicated with a dashed line. The actual tracing of the path of the steps to be performed on the current Road Map Page should be a solid line drawn onto the illustration or displayed with graphic tape. The tone and width of the tracing should be determined by experimenting with each illustration. Use the material that shows up best. Each step in the tracing should be numbered in the order of occurrence in the procedure.

PAPER MOCK-UP PAGE

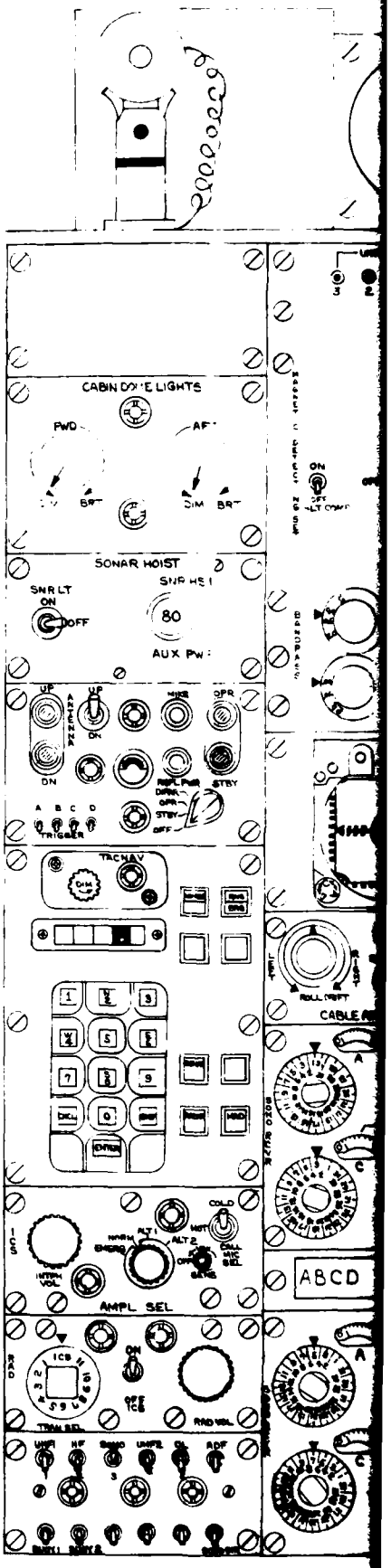
The Paper Mock-up is a display of the complete equipment which the student is responsible for manipulating. The illustration should be large enough that the individual controls may be touched as the student traces the steps in the procedure. The Mock-up should fold out in a manner that will permit the student to use it at appropriate times throughout the text (see figure 6).

CHECKLIST

If a checklist is used in performing the procedure on the equipment, an exact duplicate of the checklist should be included on the Paper Mock-up. Also a photocopy of the actual checklist should be placed at the beginning of the module.

Initial Control Setting with SDC.

1. POWER switch(azimuth and range indicator).....OFF(EXTINGUISHED)
2. TEST switch A (azimuth and range indicator).....0
3. TEST switch B (azimuth and range indicator).....0
4. MTI THRESHOLD switch (azimuth and range indicator).....OFF
5. CURSOR INTENSITY control (azimuth and range indicator).....FULL CCW
6. CRT INTENSITY control (azimuth and range indicator).....FULL CCW
7. VIDEO GAIN control (azimuth and range indicator).....FULL CCW
8. AUDIO GAIN control (azimuth and range indicator).....FULL CCW
9. RANGE SCALE-KYDS switch (sonar receiver).....8
10. FREQUENCY switch (sonar receiver).....2
11. MODE switch (sonar receiver).....PASSIVE
12. CURSOR POSITION control (sonar receiver).....AS SET
13. MODE switch (recorder).....OFF
14. RANGE RATE control (recorder).....0
15. PULSE switch (recorder).....M
16. CONTRAST control (recorder).....MIDPOSITION
17. POWER circuit breaker (sonar transmitter).....PULLED
18. SDC PROCESS MODE selector switches channels A thru D.....OFF
19. SDC DOWNLINK CHANNEL select switches.....0,0
20. SDC SENSOR switch.....OFF
21. TRANS SEL switch (transmitter selector panel).....ICS
22. ICS ON/OFF switch (transmitter selector panel).....ON
23. RAD VOL control (transmitter selector panel).....3/4 TO FULL CW
24. INTPH VOL control (ICS master control panel).....MIDPOSITION
25. AMPL SEL switch (ICS master control panel).....NORM
26. MIC SEL switch (ICS master control panel).....COLD
27. Receiver selector panel switches.....OFF
28. SONO switch (receiver selector panel).....ON
29. L-OPR switch (SONAR ICS transmit selector panel).....ICS
30. R-OPR switch (SONAR ICS transmit selector panel).....ICS
31. PILOTS/SONAR ICS switch (SONAR ICS transmit selector panel).....PILOTS' ICS
32. UHF 2 switch (cockpit console).....GUARD
33. PANEL LIGHTS knob (sensor operators console).....AS DESIRED
34. POWER switch (ABCD sonobuoy receiver panel).....POWER
35. A,B,C,D channel switches (sonobuoy receiver panel).....1,2,3,4 RESPECTIVELY
36. POWER switch (EFGH sonobuoy receiver panel).....POWER
37. E,F,G,H channel switches (sonobuoy receiver panel) 5,6,7,8 RESPECTIVELY
38. A/E, B/F, C/G, D/H pushbuttons (SDC SONB SEL panel).....A,B,C,D ILLUMINATED
39. Hover indicator.....C MODE
40. ROLL DRIFT control (cable angle control panel).....MIDPOSITION
41. PITCH DRIFT control (cable angle control panel).....MIDPOSITION



SH-3H SENSOR STATION
TAEG APRIL 81

DRAWN BY:- C.V. JOHNSON

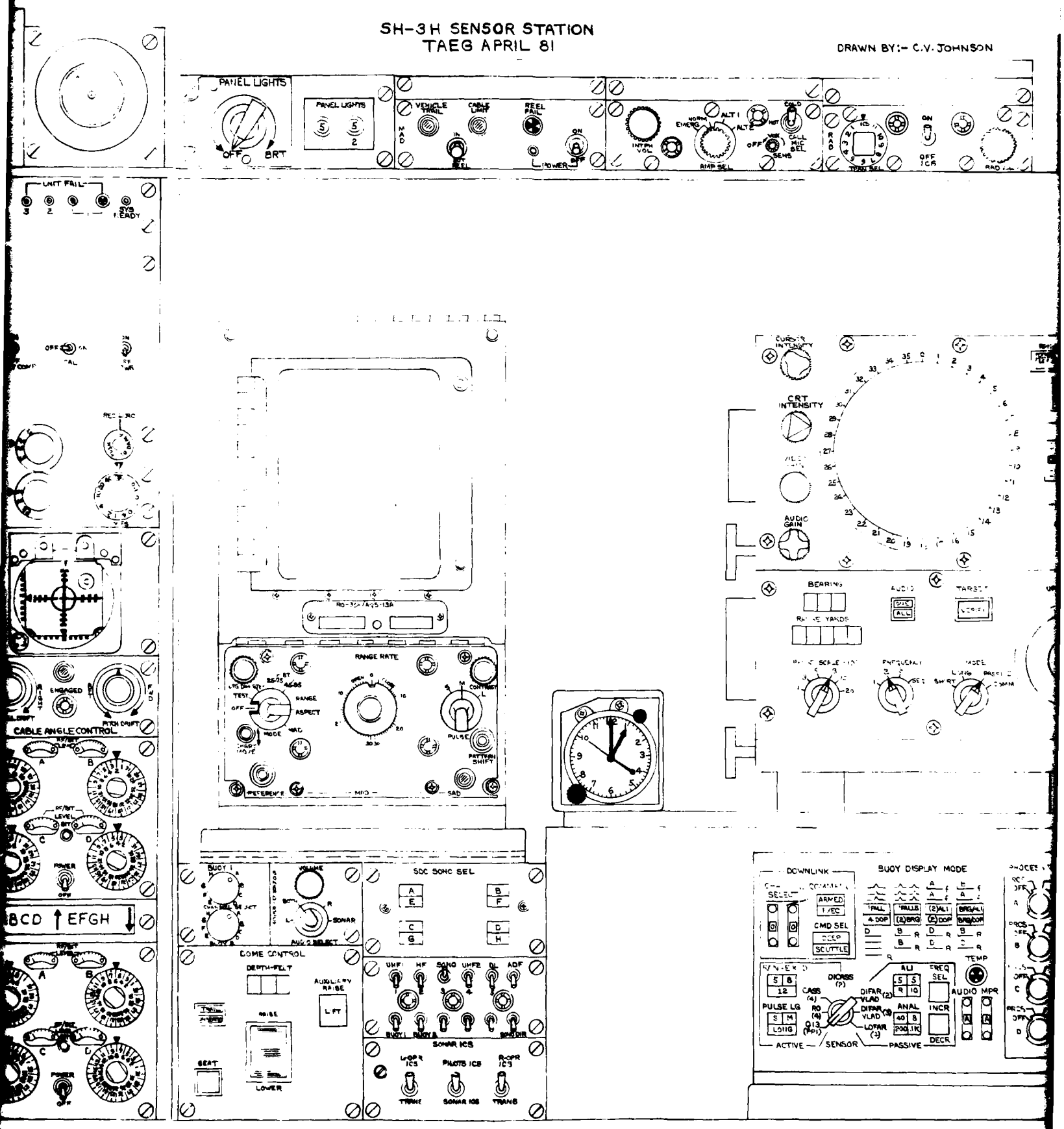


Figure 6.

SH-3H SENSOR STATION
TAEG APRIL 81

DRAWN BY:- C.V. JOHNSON

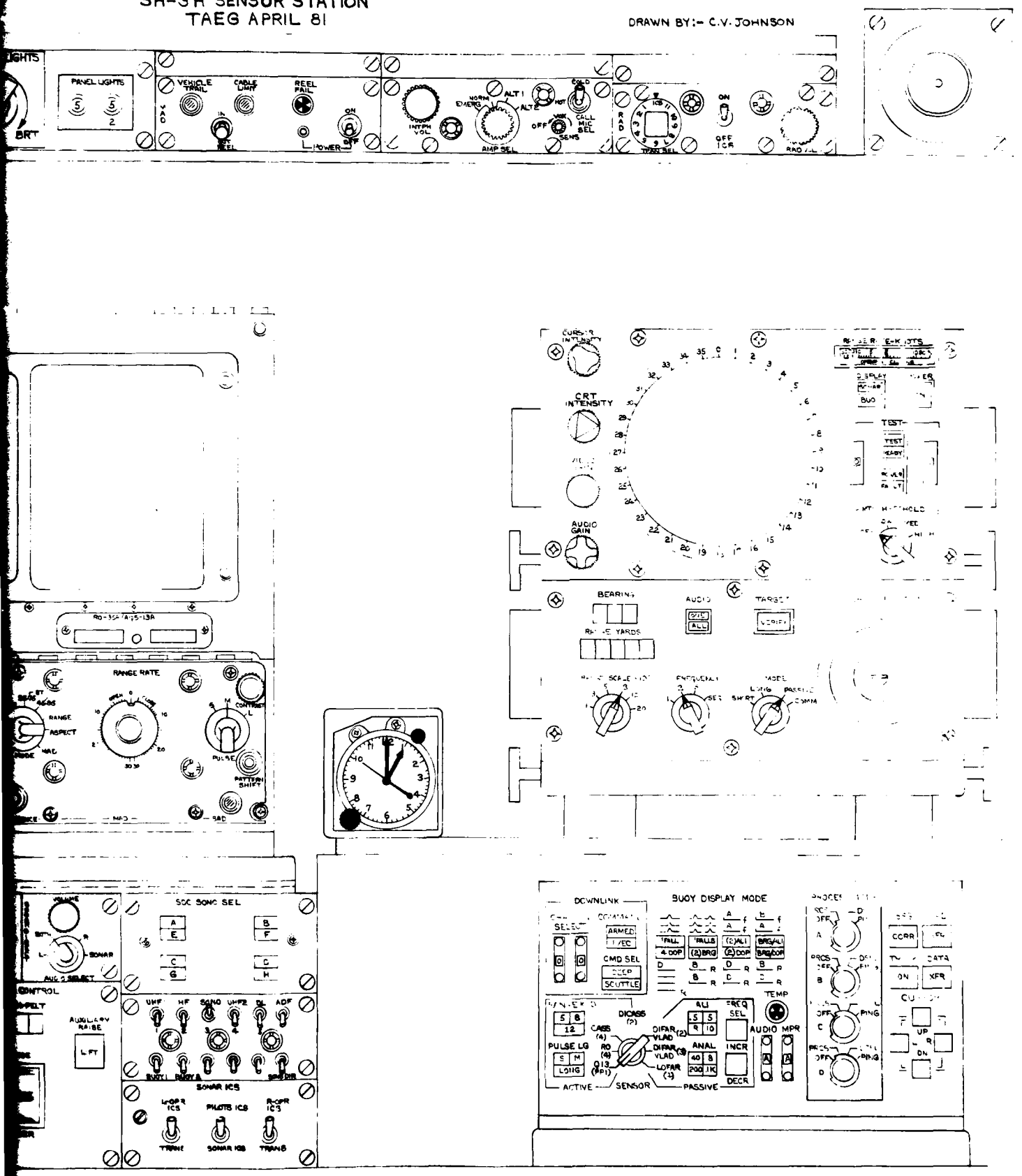
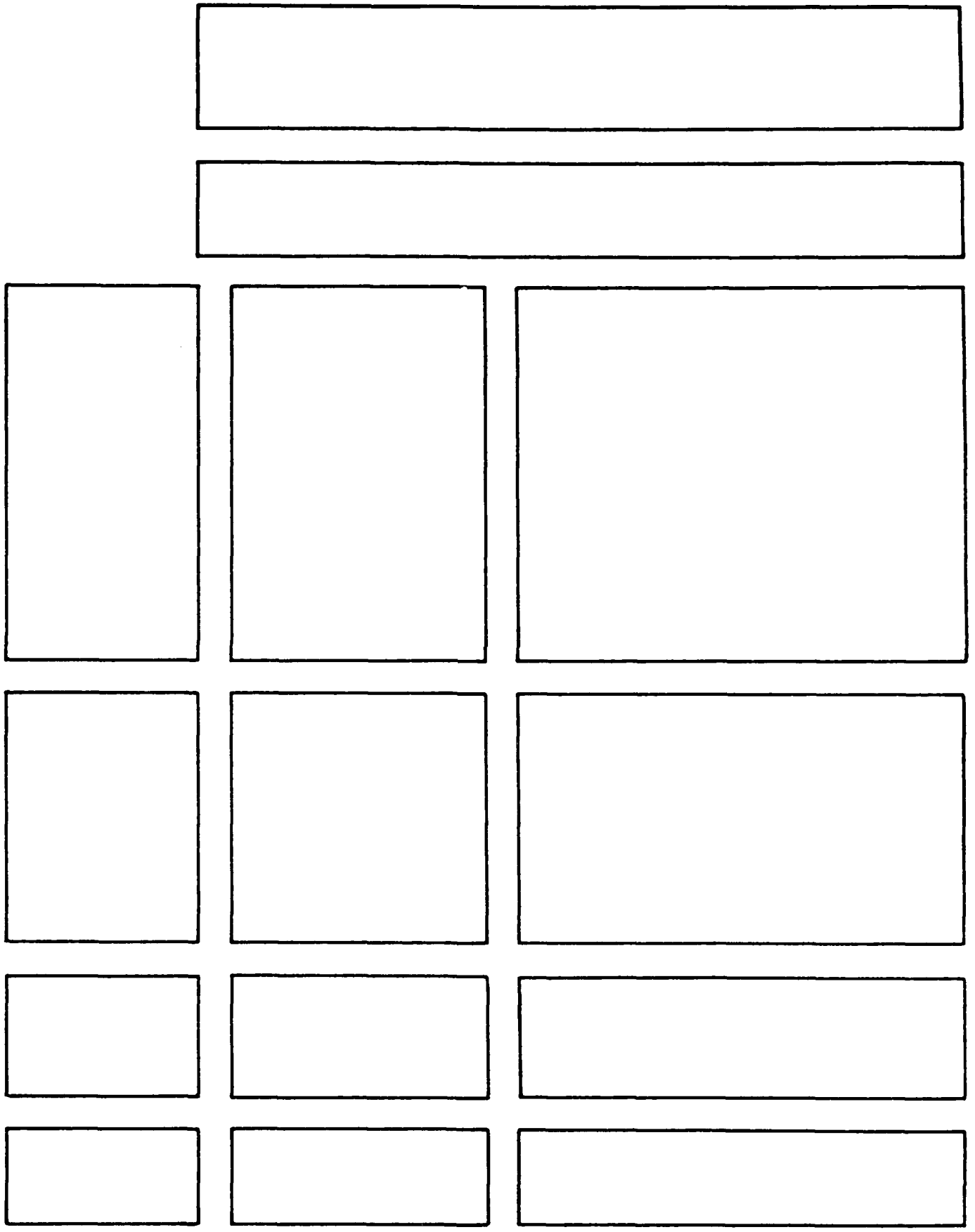


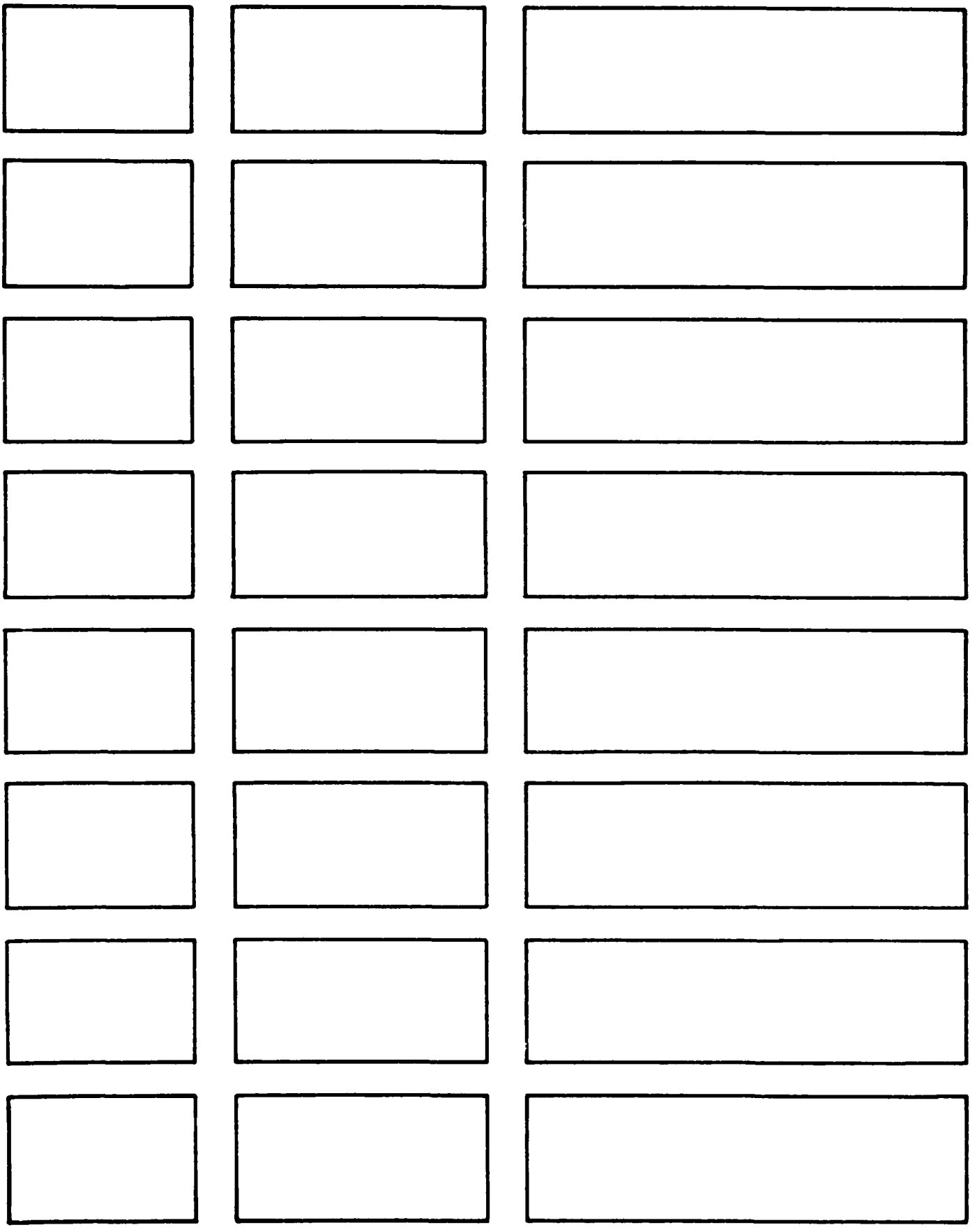
Figure 6. Mock-up Page 13/14

APPENDIX A

BOX PAGES

The sample box pages in this appendix may be used as camera ready art for printing self-adhesive box pages.

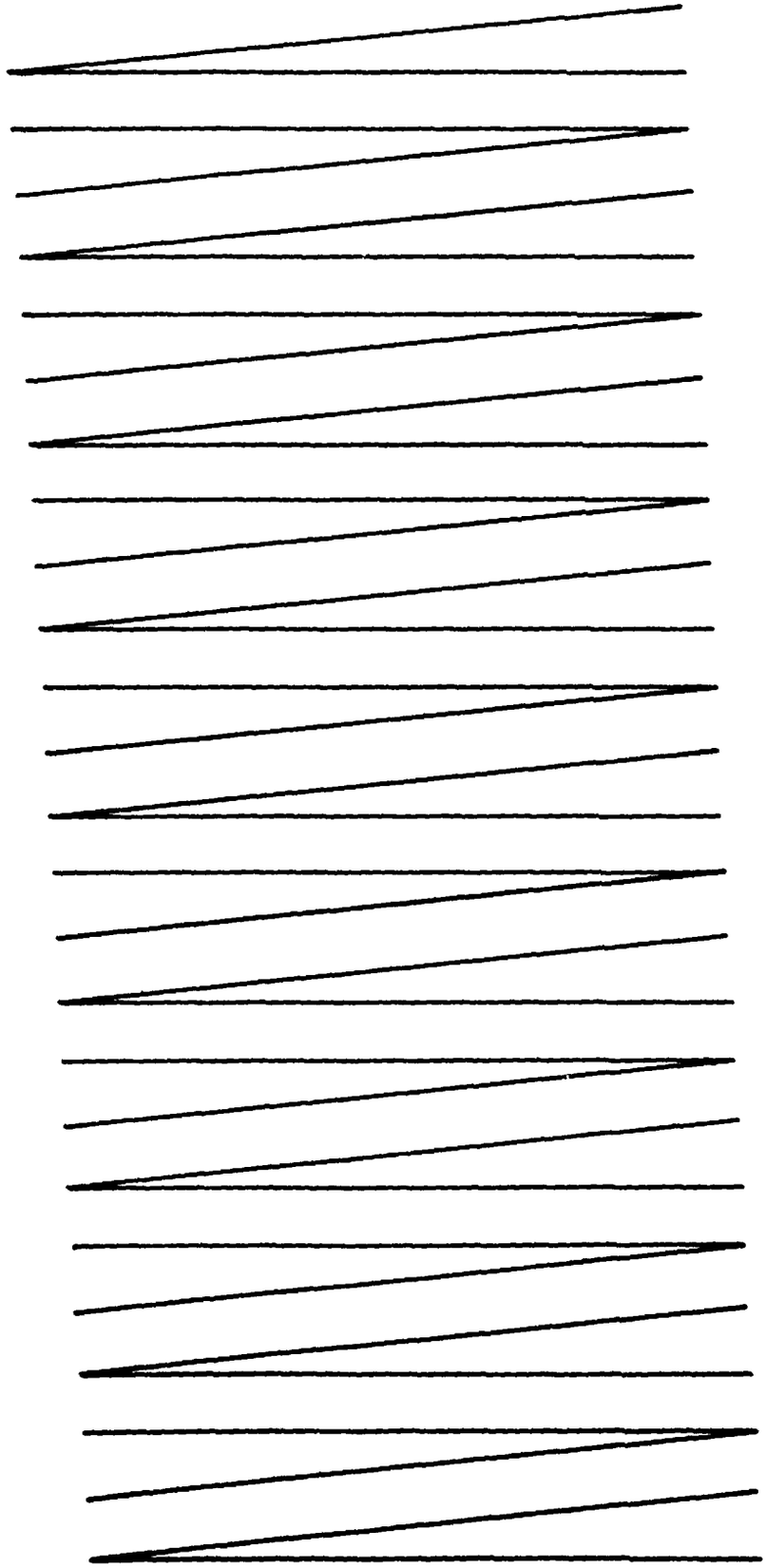


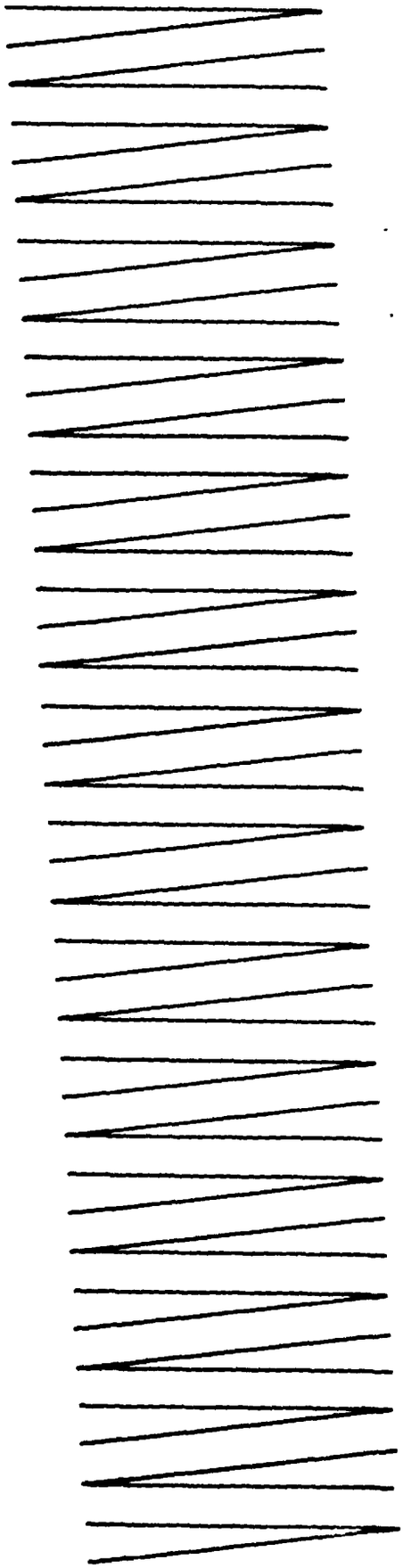


APPENDIX B

DART PAGE

The sample dart page contained in this appendix may be used as camera ready art for printing self-adhesive darts.





APPENDIX C

ROAD MAP PAGE

The sample Road Map Page contained in this appendix may be used as camera ready art for printing Road Map Pages.

ROAD MAP

- With your finger, trace the steps
- Recall (1) how to perform, (2) systems response
- Look up answers if you need help
- Keep practicing until you can describe steps without error or hesitation

GO TO PAPER MOCK-UP

- Step through all items
- Touch where each action and response takes place
- Recall exact action for each item

APPENDIX D

PROCEDURE TRAINING AID

This appendix contains an example of a Procedure Training Aid.[4] It is a self-paced, independent study module designed to guide students in learning to perform the procedures in the initial control setting for the AQS-13E SONAR in the SH-3H helicopter. The training aid was constructed in the HS1 fleet readiness squadron by a subject matter expert utilizing the guidelines and materials provided in this report.

Though it has not been formally evaluated, HS1 students and instructors report great satisfaction with this training aid. Instructors report that prior to use of the training aid, beginning students required 20 minutes to perform the control setting checklist for the first time. With use of the training aid the same procedure is performed for the first time in less than one minute. Student reactions include favorable comments regarding the use of visual information in the training aid. They also remarked that the opportunity to practice the checklist on the paper mock-up gave them a lot of confidence in their ability to perform the procedure on the first trial in the helicopter.

[4]This Procedure Training Aid was prepared by AW1 Robert E. Pulos of HS1, Jacksonville, Florida. Technical consultation was provided by Paul Scott, Richard Braby, and William Terrell of the Training Analysis and Evaluation Group.

Technical Memorandum 82-2

PROCEDURE TRAINING AID FOR THE LEARNING OF INITIAL CONTROL SETTING FOR THE AQS-13E SONAR IN THE SH-3H AIRCRAFT

Prepared by

AW1 Robert E. Pulos
Helicopter Antisubmarine Squadron One
Jacksonville, Florida

NOTE: The Procedure Training Aid contained in this appendix retains its original page numbers. It has not been renumbered to conform to the page number sequence of this technical memorandum.

AQS-13E INITIAL CONTROL SETTING WITH SDC

INTRODUCTION

Learning Objective

When you complete this package you will be able to:

1. describe each item in the NATOPS SH-3H Sonar Initial Control Setting with SDC Checklist, using the checklist and the paper mock-up of the senso station.

2. perform each item on the SH-3 Aircraft, without hesitation, error, or omission.

Why Learn This Procedure

NATOPS requires use of the Checklist each time a mission is flown.

Resources Required

In addition to this booklet, you will need:

1. paper mock-up of the SH-3H Sensor Station

2. NATOPS SH-3H Sensor System Preflight Checklist

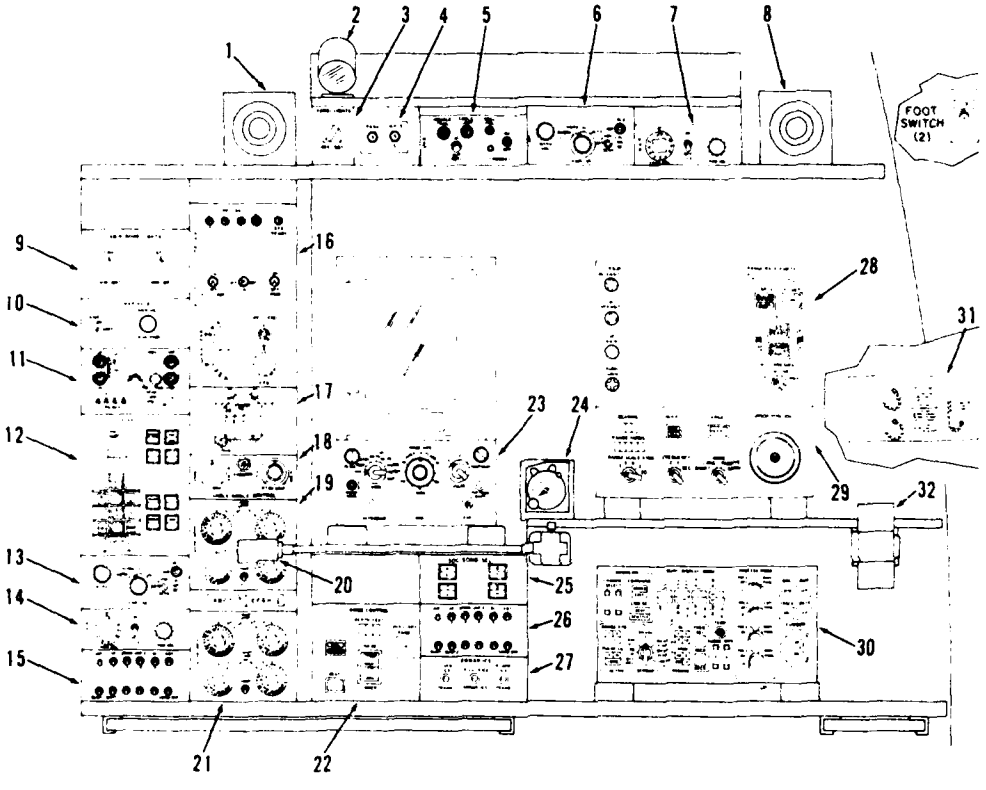
3. SH-3H Aircraft (used only in the final phase of lesson).

Senso System Description

Figure 1. shows the locations and names of the panels and equipment in the Sensor Operators Console.

Figure 2. shows the configuration of the Sonar Detecting-Ranging Set (AQS-13E).

1 VENTILATING DUCT
2 LIGHT
3 PANEL LIGHTS CONTROL
4 PANEL LIGHTS CIRCUIT BREAKERS
5 MAD REELING MACHINE CONTROL PANEL
6 ICS MASTER CONTROL PANEL
7 RADIO TRANSMITTER SELECTOR PANEL
8 VENTILATING DUCT



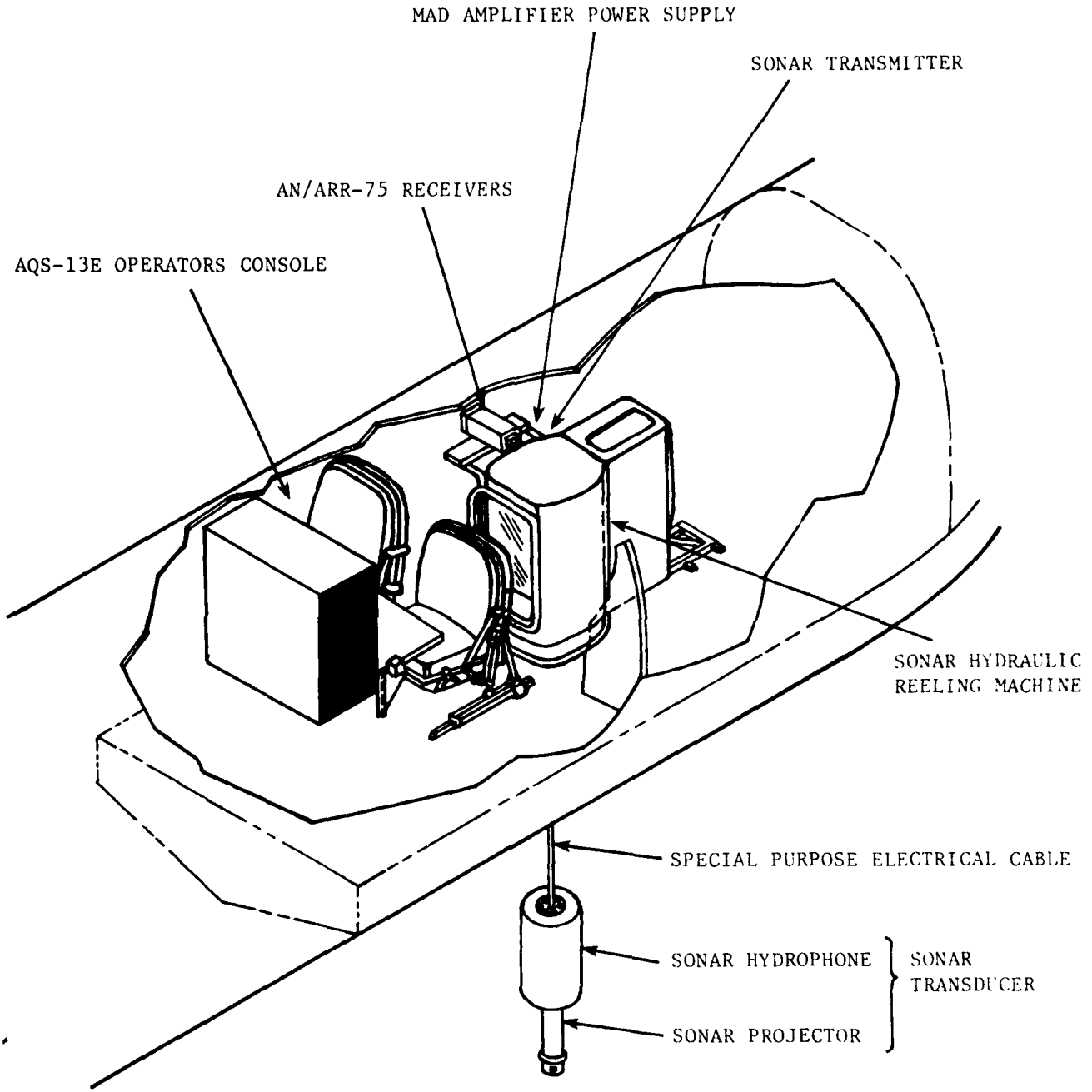
9 CABIN DOME LIGHT CONTROL PANEL
10 SONAR AUXILIARY HOIST CONTROL PANEL
11 SONOBUOY TRANSMITTER CONTROL/INDICATOR PANEL
12 TACNAV SENSO PANEL
13 ICS MASTER CONTROL PANEL
14 RADIO TRANSMITTER SELECTOR PANEL
15 RADIO RECEIVER CONTROL PANEL
16 MAD CONTROL PANEL
17 HOVER INDICATOR
18 SONAR CABLE ANGLE CONTROL PANEL
19 SONOBUOY RECEIVER (ARR-75) FREQUENCY SELECTOR AND INDICATOR PANEL
20 FLEXIBLE LIGHT
21 SONOBUOY RECEIVER (ARR-75) FREQUENCY SELECTOR AND INDICATOR PANEL
22 SONAR DOME CONTROL PANEL
23 SONAR/MAGNETIC DETECTING RECORDER
24 CLOCK
25 SDC SONOBUOY SELECTOR PANEL
26 RADIO RECEIVER CONTROL PANEL
27 SONAR ICS ISOLATION SELECTOR PANEL
28 SONAR AZIMUTH AND RANGE INDICATOR
29 SONAR RECEIVER CONTROL PANEL
30 SDC CONTROL PANEL
31 UTILITY POWER RECEPTACLE
32 LIGHT

SH-3H GROUP E AND SUBSEQUENT

S 26963 3 (C1)

AQS-13E Sensor Operators' Console

Figure 1



SONAR DETECTING - RANGING SET (AQS-13E)

Figure 2

Initial Control Setting with SDC.

1. POWER switch(azimuth and range indicator).....OFF(EXTINGUISHED)
2. TEST switch A (azimuth and range indicator).....0
3. TEST switch B (azimuth and range indicator).....0
4. MTI THRESHOLD switch (azimuth and range indicator).....OFF
5. CURSOR INTENSITY control (azimuth and range indicator).....FULL CCW
6. CRT INTENSITY control (azimuth and range indicator).....FULL CCW
7. VIDEO GAIN control (azimuth and range indicator).....FULL CCW
8. AUDIO GAIN control (azimuth and range indicator).....FULL CCW
9. RANGE SCALE-KYDS switch (sonar receiver).....8
10. FREQUENCY switch (sonar receiver).....2
11. MODE switch (sonar receiver).....PASSIVE
12. CURSOR POSITION control (sonar receiver).....AS SET
13. MODE switch (recorder).....OFF
14. RANGE RATE control (recorder).....0
15. PULSE switch (recorder).....M
16. CONTRAST control (recorder).....MIDPOSITION
17. POWER circuit breaker (sonar transmitter).....UP(ON)
18. SDC PROCESS MODE selector switches channels A thru D.....OFF
19. SDC DOWNLINK CHANNEL SELECT switches.....00
20. SDC SENSOR switch.....Q13(PP1)
21. TRANS SEL switch (transmitter selector panel).....ICS
22. ICS ON/OFF switch (transmitter selector panel).....ON
23. RAD VOL control (transmitter selector panel).....3/4 TO FULL CW
24. INTPH VOL control (ICS master control panel).....MIDPOSITION
25. AMPL SEL switch (ICS master control panel).....NORM

26. MIC SEL switch (ICS master control panel).....COLD

27. Receiver selector panel switches.....OFF

28. SONO switch (receiver selector panel).....ON

29. L-OPR switch (SONAR ICS transmit selector panel).....ICS

30. R-OPR switch (SONAR ICS transmit selector panel).....ICS

31. PILOTS/SONAR ICS switch (SONAR ICS transmit selector panel).....PILOTS ICS

32. UHF 2 switch (cockpit console).....COMM

33. PANEL LIGHTS knob (sensor operators console).....AS DESIRED

34. POWER switch (ABCD sonobuoy receiver panel).....POWER

35. A,B,C,D channel switches (sonobuoy receiver panel).....1,2,3,4 RESPECTIVELY

36. POWER switch (EFGH sonobuoy receiver panel).....POWER

37. E,F,G,H channel switches (sonobuoy receiver panel) 5,6,7,8 RESPECTIVELY

38. A/E, B/F, C/G, D/H pushbuttons (SDC SONB SEL panel).....A,B,C,D ILLUMINATED

39. Hover indicator.....C MODE

40. ROLL DRIFT control (cable angle control panel).....MIDPOSITION

41. PITCH DRIFT control (cable angle control panel).....MIDPOSITION

AQS-13E INITIAL CONTROL SETTINGS with SDC

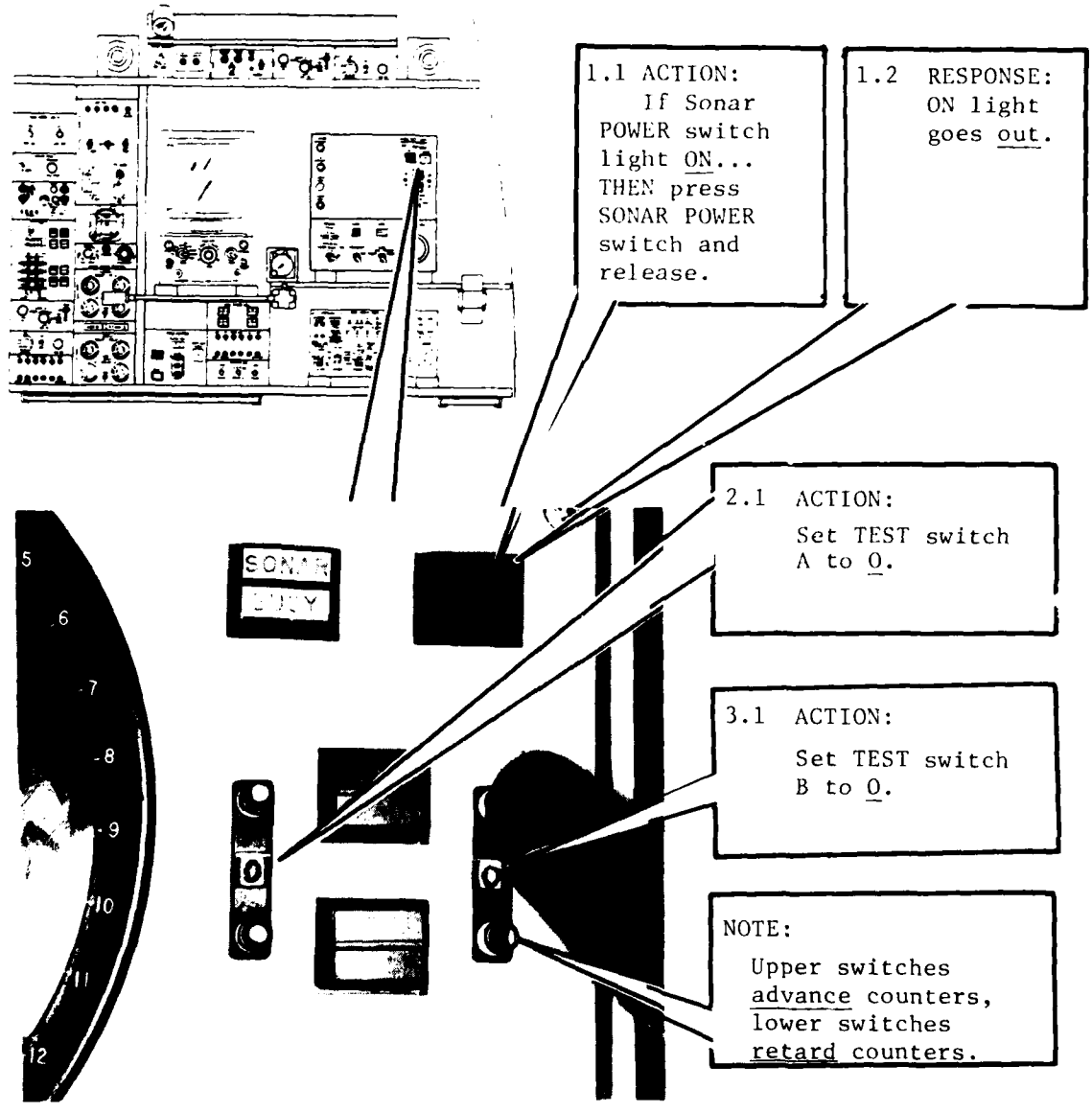
Panel/Group AZIMUTH AND RANGE INDICATOR

CHECKLIST

ITEM

1. POWER switch (azimuth and range indicator)..... OFF (EXTINGUISHED)
2. TEST switch A (azimuth and range indicator)..... 0
3. TEST switch B (azimuth and range indicator)..... 0

Purpose: Prevent damage to Sonar due to voltage fluctuations during engine starts. Set normal operation BITE configuration.



AQS-13E INITIAL CONTROL SETTINGS with SDC

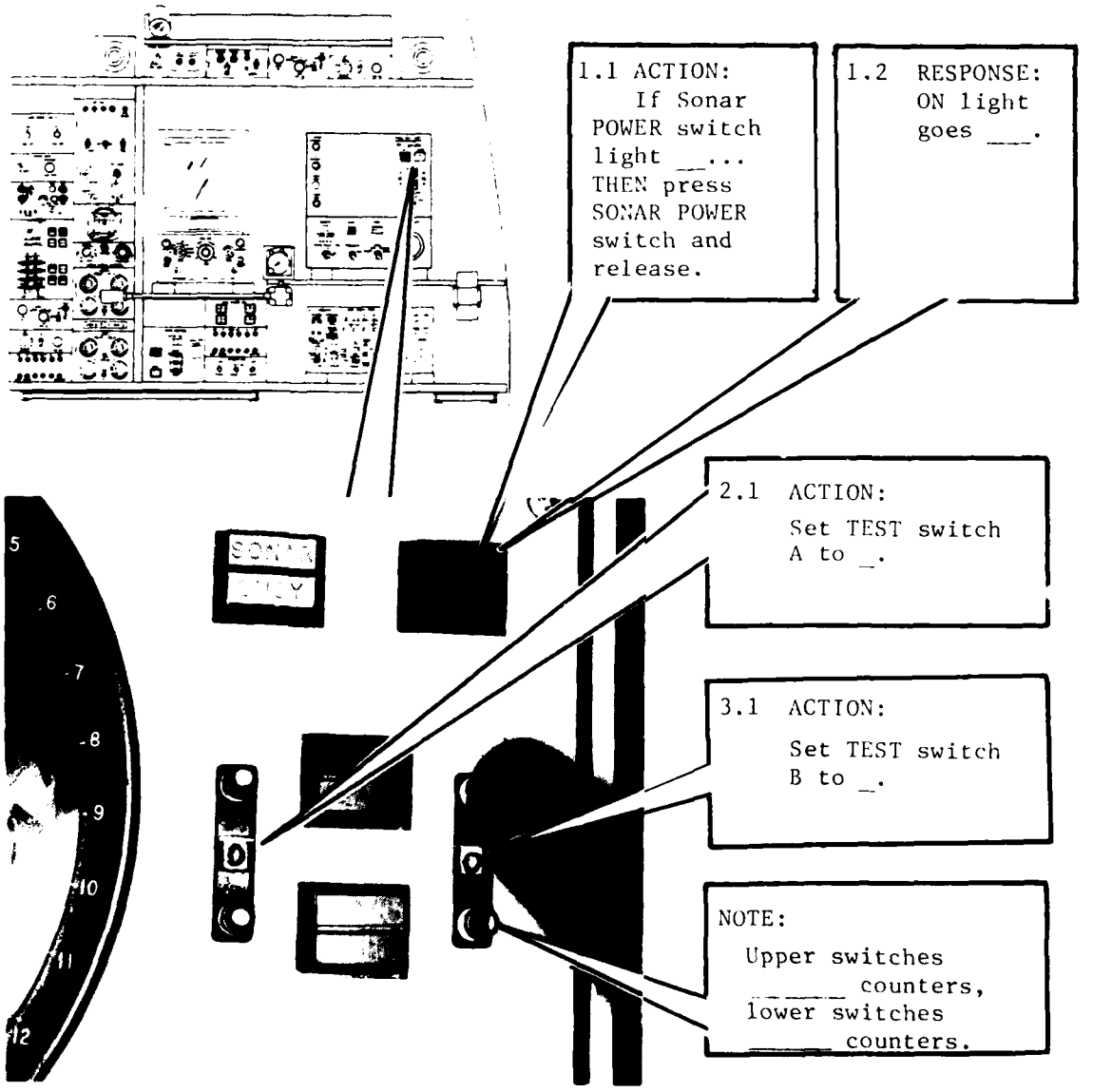
Panel/Group AZIMUTH AND RANGE INDICATOR

CHECKLIST

ITEM

1. POWER switch (azimuth and range indicator)..... ___ (_____)
2. TEST switch A (azimuth and range indicator)..... _
3. TEST switch B (azimuth and range indicator)..... _

Purpose: Prevent damage to Sonar due to voltage fluctuations during engine starts. Set normal operation BITE configuration.

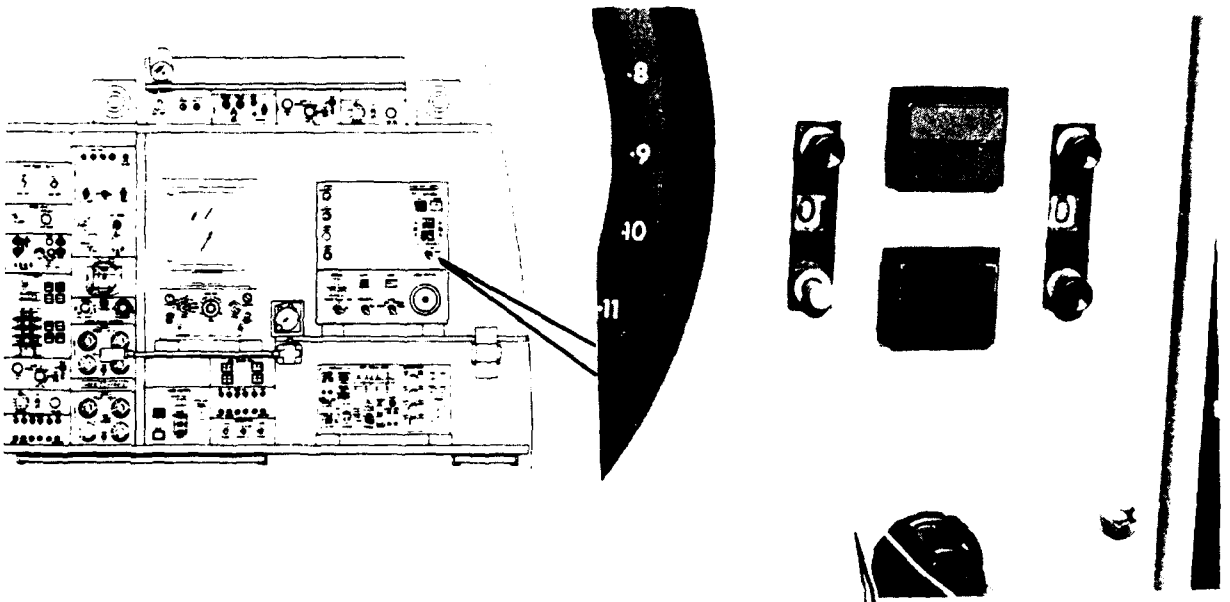


AQS-13E INITIAL CONTROL SETTINGS with SDC

Panel/Group AZIMUTH AND RANGE INDICATOR

CHECKLIST
ITEM
4. MTI THRESHOLD switch (azimuth and range indicator)..... OFF

Purpose: Disable Moving Target Indicator (MTI).



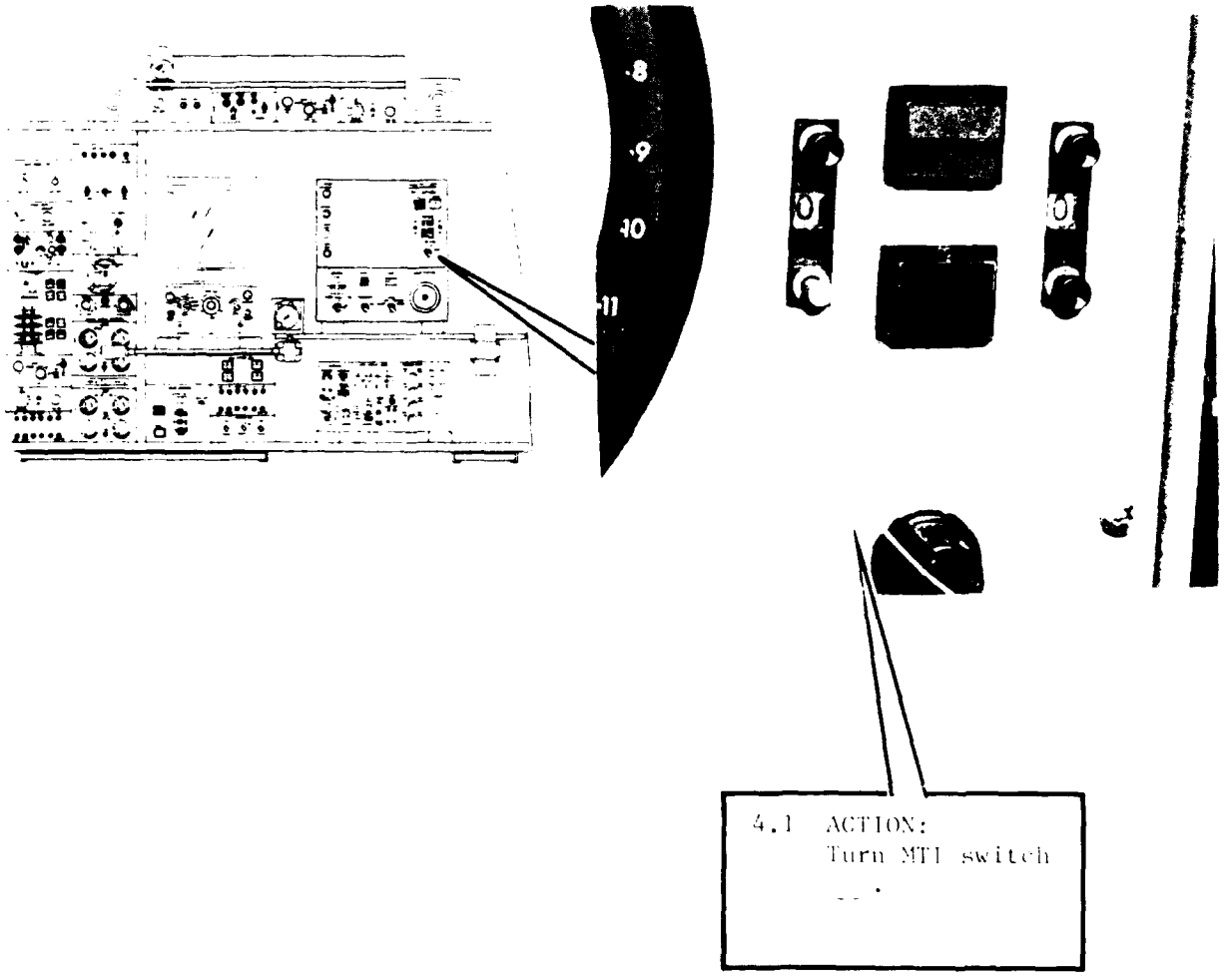
4.1 ACTION:
Turn MTI switch OFF.

AQS-13E INITIAL CONTROL SETTINGS with SDC

Panel/Group AZIMUTH AND RANGE INDICATOR

CHECKLIST
ITEM
4. MTI THRESHOLD switch (azimuth and range indicator)..... ___

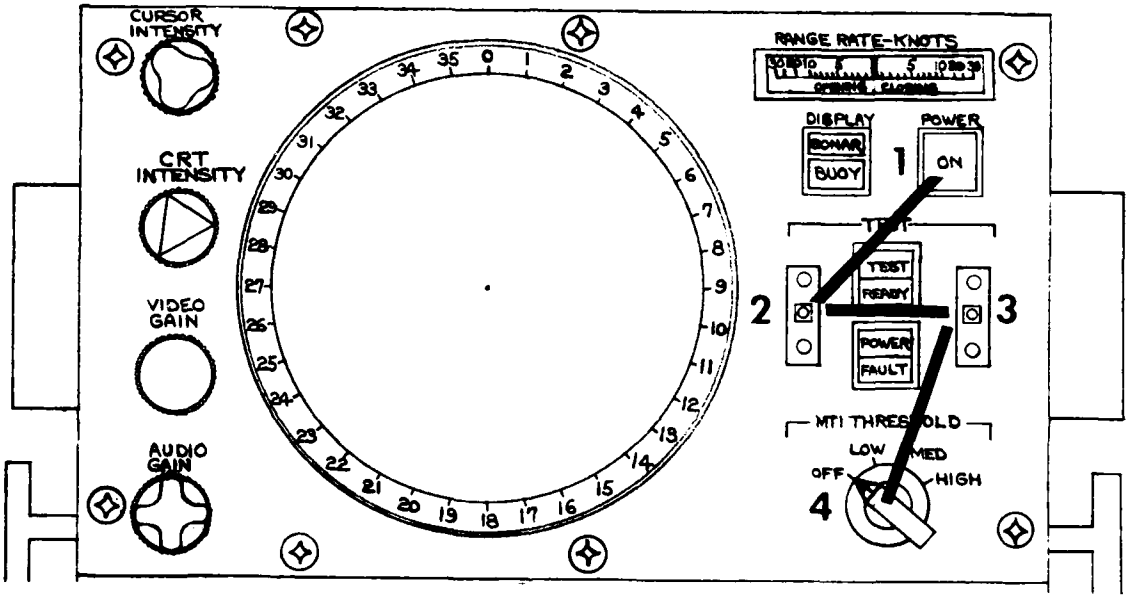
Purpose: Disable Moving Target Indicator (MTI).



ROAD MAP

- With your finger, trace the steps
- Recall (1) how to perform, (2) systems response
- Look up answers if you need help
- Keep practicing until you can describe steps without error or hesitation

Item 1: POWER.....
2: Test Switch A.....
3: Test Switch B.....
4: MTI THRESHOLD Switch.....



GO TO PAPER MOCK-UP

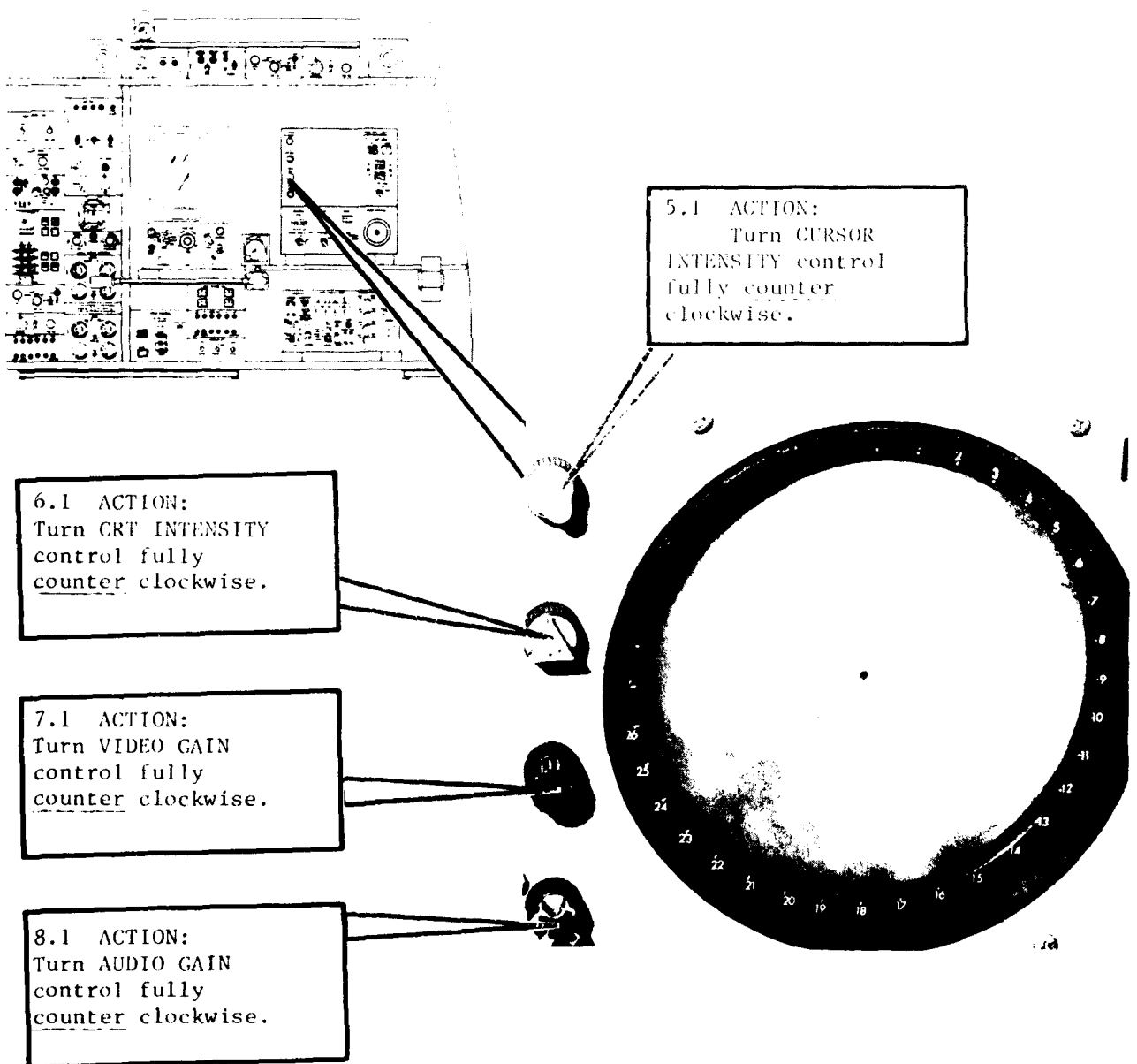
- Step through all items
- Touch where each action and response takes place
- Recall exact action for each item

AQS-13E Sonar Power Off Che·k

Panel/Group AZIMUTH AND RANGE INDICATOR
CHECKLIST
ITEM

5.	CURSOR INTENSITY control (azimuth and range indicator)...	FULL CCW
6.	CRT INTENSITY control (azimuth and range indicator).....	FULL CCW
7.	VIDEO GAIN control (azimuth and range indicator).....	FULL CCW
8.	AUDIO GAIN control (azimuth and range indictor).....	FULL CCW

Purpose: To set intensity and gain controls to minimum.

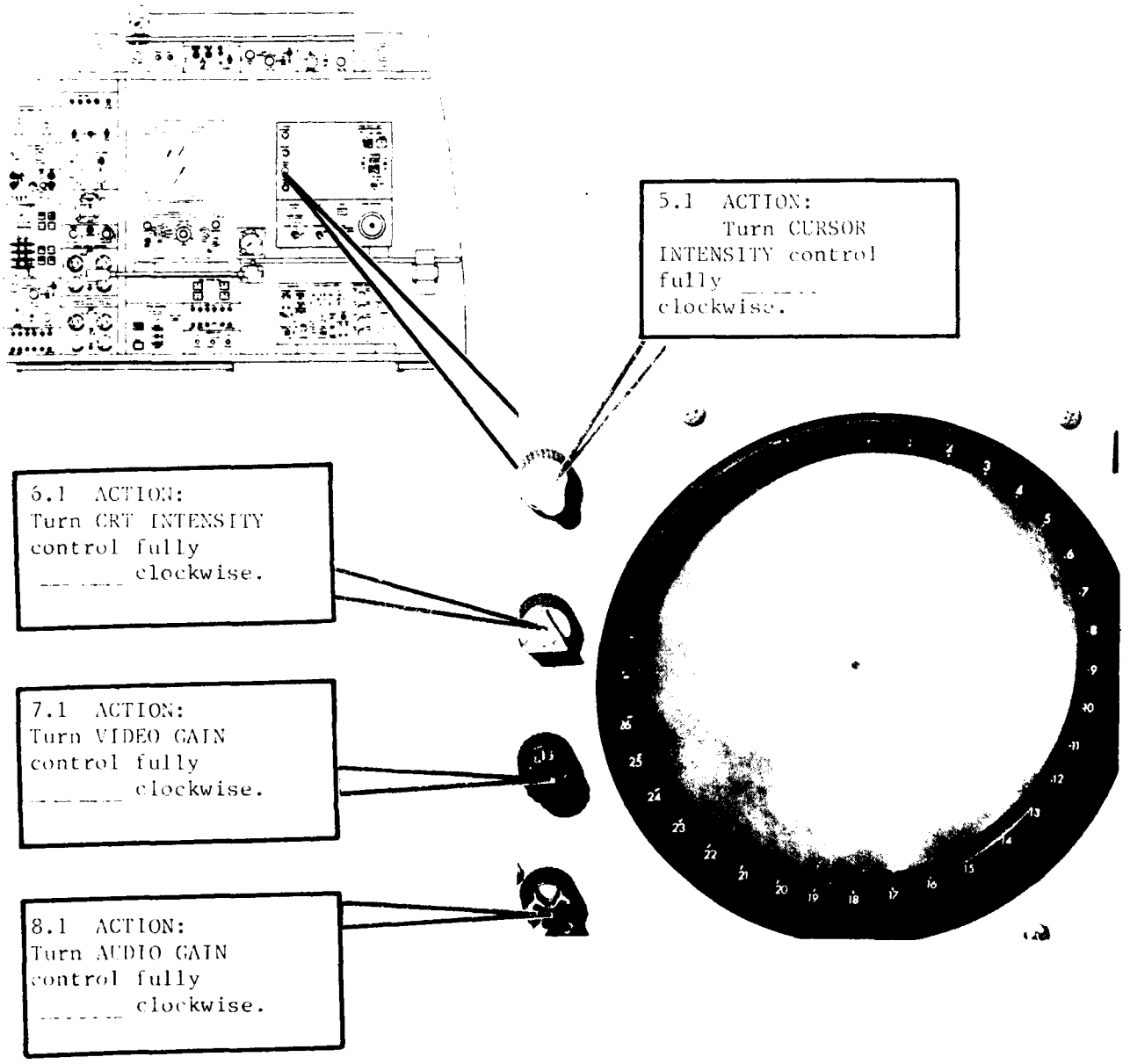


AQS-13E Sonar Power Off Check

Panel/Group AZIMUTH AND RANGE INDICATOR
CHECKLIST
ITEM

5.	CURSOR INTENSITY control (azimuth and range indicator)...	FULL ___
6.	CRT INTENSITY control (azimuth and range indicator).....	FULL ___
7.	VIDEO GAIN control (azimuth and range indicator).....	FULL ___
8.	AUDIO GAIN control (azimuth and range indictor).....	FULL ___

Purpose: To set intensity and gain controls to minimum.

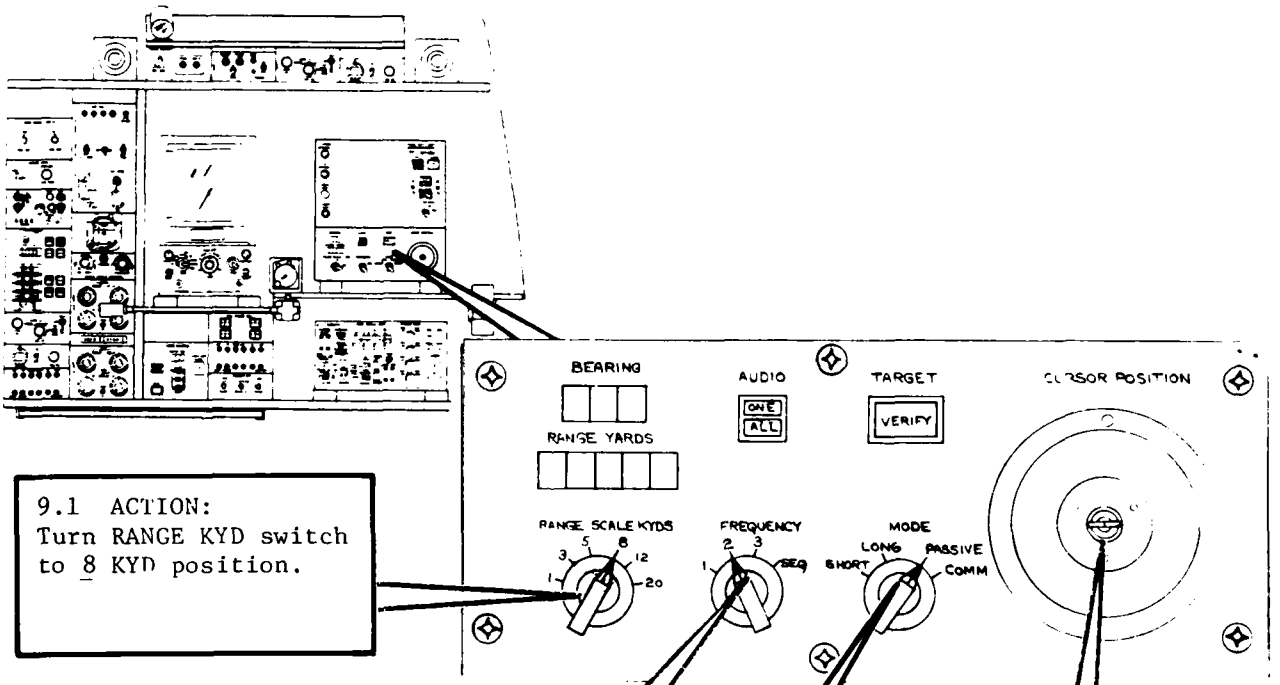


AQS-13E Sonar Power Off Check

Panel/Group SONAR RECEIVER
CHECKLIST
ITEM

9.	RANGE SCALE-KYDS switch (sonar receiver).....	8
10.	FREQUENCY switch (sonar receiver).....	2
11.	MODE switch (sonar receiver).....	PASSIVE
12.	CURSOR POSITION control (sonar receiver).....	AS SET

Purpose: Ensure proper mode, frequency, and range scale for starting power on preflight checks.



9.1 ACTION:
Turn RANGE KYD switch to 8 KYD position.

10.1 ACTION:
Turn FREQUENCY switch to 2.

12.1 CURSOR POSITION as set.

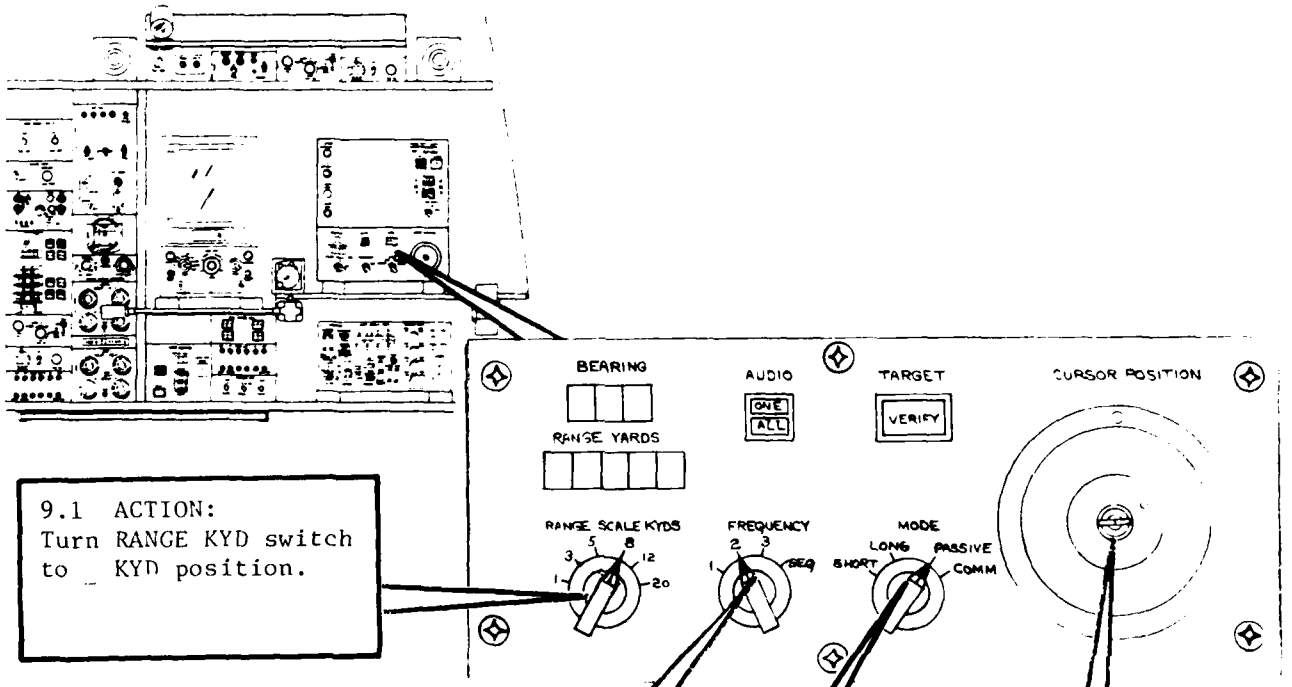
11.1 ACTION:
Turn mode switch to PASSIVE.

AQS-13E Sonar Power Off Check

Panel/Group SONAR RECEIVER
CHECKLIST
ITEM

9. RANGE SCALE-KYDS switch (sonar receiver)..... _
10. FREQUENCY switch (sonar receiver)..... _
11. MODE switch (sonar receiver)..... _____
12. CURSOR POSITION control (sonar receiver)..... __ __

Purpose: Ensure proper mode, frequency, and range scale for starting power on preflight checks.



9.1 ACTION:
Turn RANGE KYD switch to _ KYD position.

10.1 ACTION:
Turn FREQUENCY switch to _.

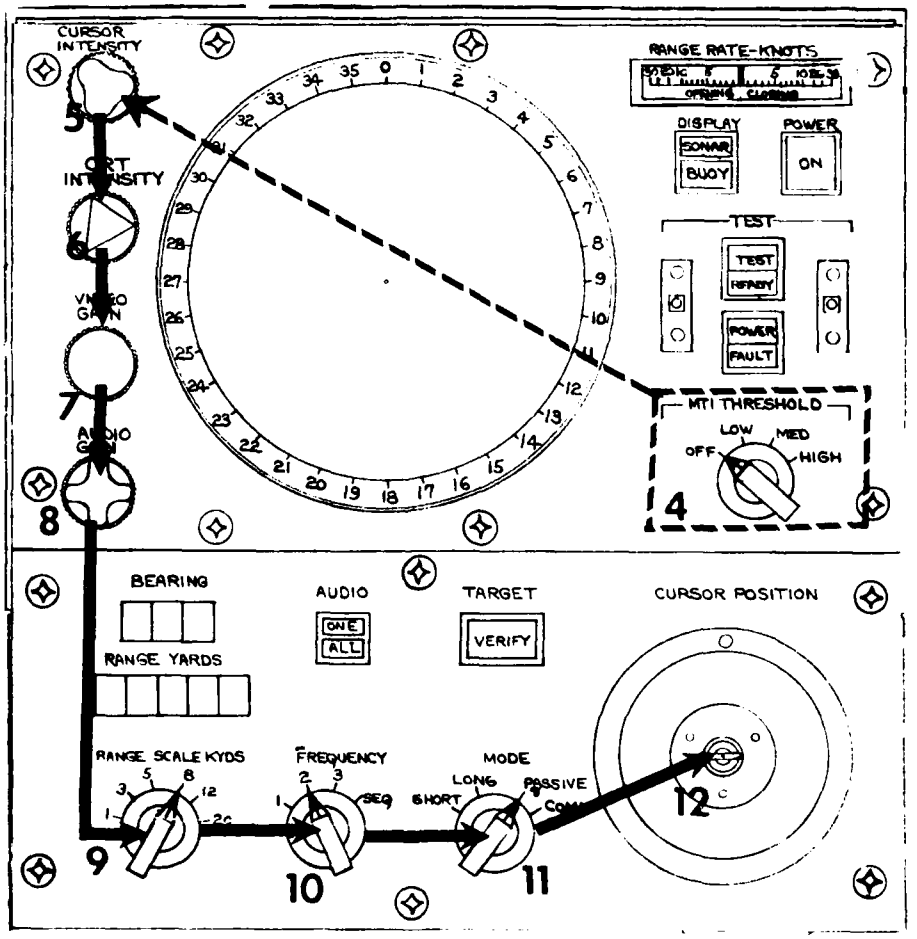
12.1 CURSOR POSITION
__ __.

11.1 ACTION:
Turn mode switch to _____.

ROAD MAP

- With your finger, trace the steps
- Recall (1) how to perform, (2) systems response
- Look up answers if you need help
- Keep practicing until you can describe steps without error or hesitation

Item 5: CURSOR INTENSITY control.....
6: CRT INTENSITY control.....
7: VIDEO GAIN.....
8: AUDIO GAIN.....
9: RANGE SCALE KYDS switch.....
10: FREQUENCY switch.....
11: MODE switch.....
12: CURSOR POSITION control.....



GO TO PAPER MOCK-UP

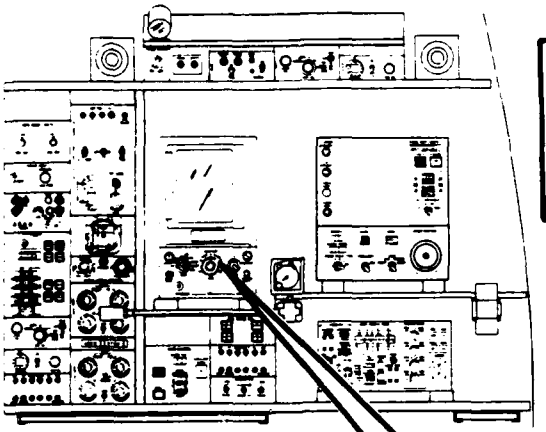
- Step through all items
- Touch where each action and response takes place
- Recall exact action for each item

Panel/Group MULTI PURPOSE RECORDER
CHECKLIST

ITEM

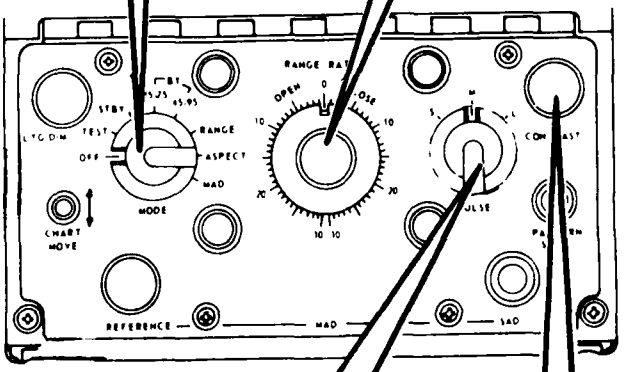
13. MODE switch (recorder)..... OFF
14. RANGE RATE control (recorder)..... 0
15. PULSE switch (recorder)..... M
16. CONTRAST control (recorder) ..... MIDPOSITION

Purpose: Set MPR controls for preflight



13.1 ACTION
Turn MODE switch to OFF position.

14.1 ACTION
Set RANGE RATE control knob to 0



15.1 ACTION
Set PULSE switch to medium pulse.

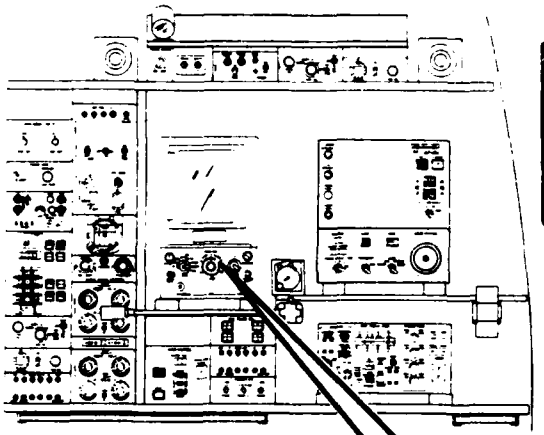
16.1 ACTION:
SET CONTRAST control MIDPOSITION.

Panel/Group MULTI PURPOSE RECORDER
CHECKLIST

ITEM

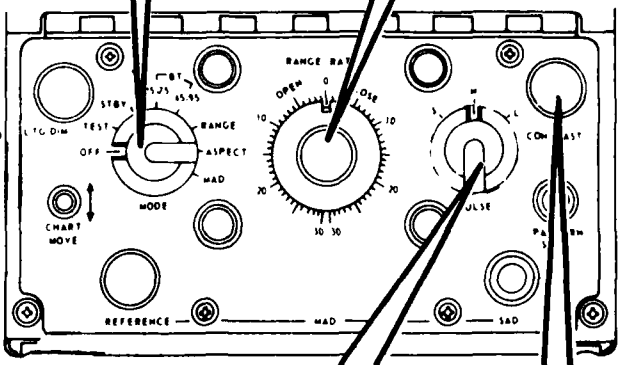
13. MODE switch (recorder)..... ___
14. RANGE RATE control (recorder)..... _
15. PULSE switch (recorder)..... _
16. CONTRAST control (recorder) ..... _____

Purpose: Set MPR controls for preflight



13.1 ACTION
Turn MODE switch to
___ position.

14.1 ACTION
Set RANGE RATE control
knob to _



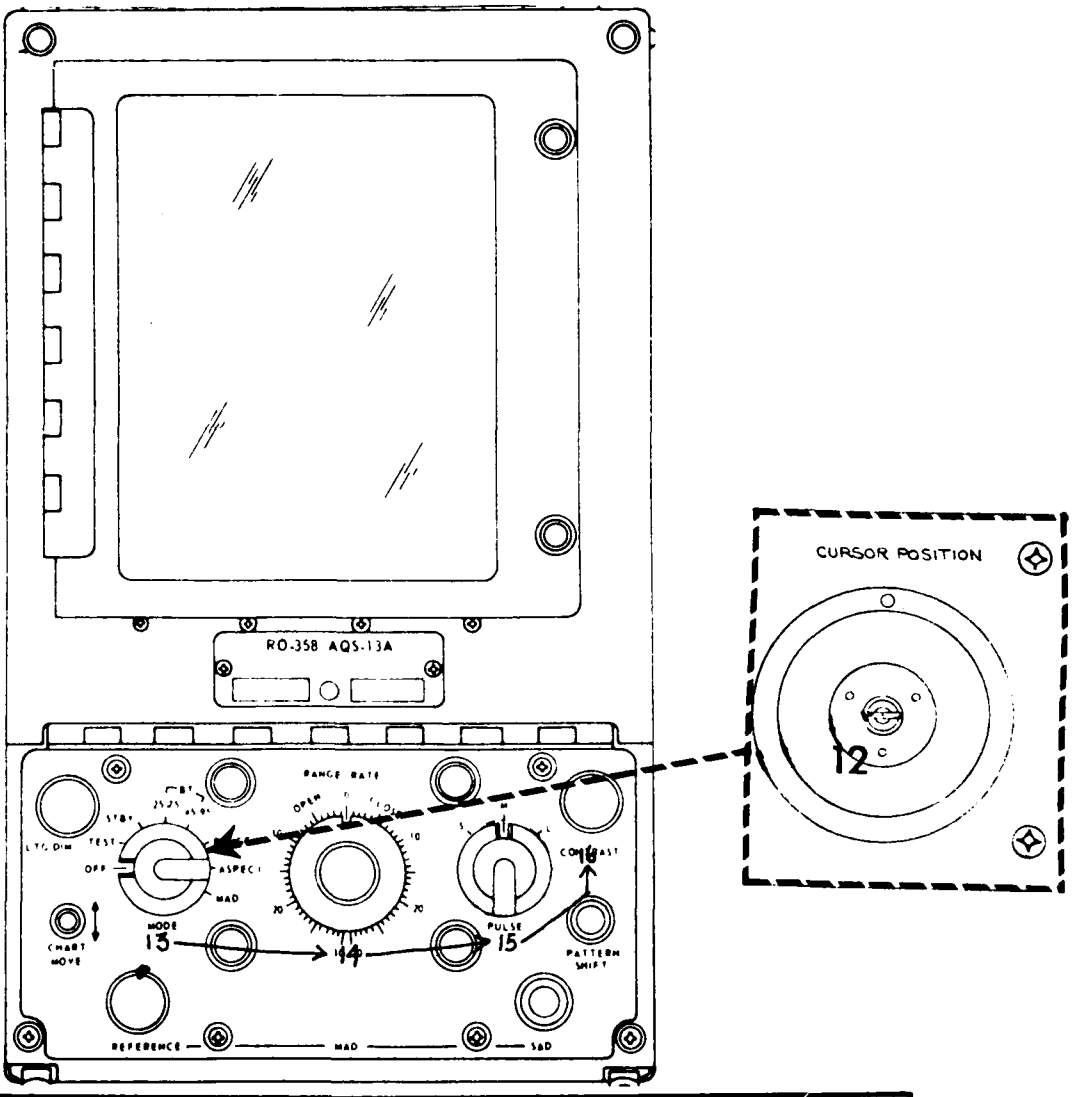
15.1 ACTION
Set PULSE switch to
_____ pulse.

16.1 ACTION:
SET CONTRAST control
_____

ROAD MAP

- With your finger, trace the steps
- Recall (1) how to perform, (2) systems response
- Look up answers if you need help
- Keep practicing until you can describe steps without error or hesitation

Item 13: MODE switch.....
14: RANGE RATE control.....
15: PULSE switch.....
16: CONTRAST control.....



GO TO PAPER MOCK-UP

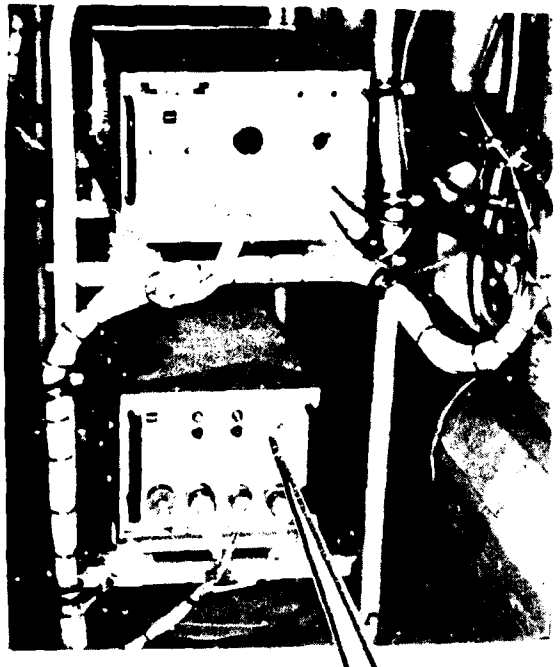
- Step through all items
- Touch where each action and response takes place
- Recall exact action for each item

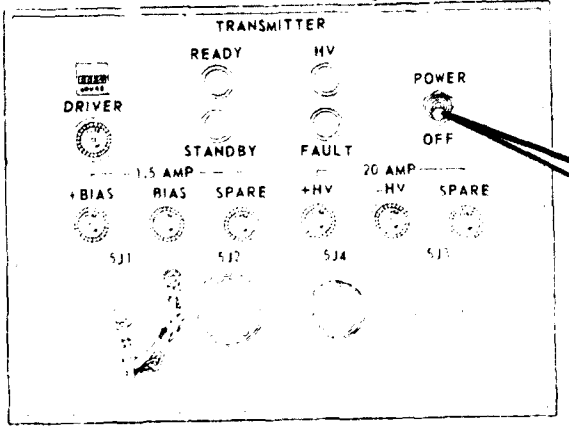
AQS-13E INITIAL CONTROL SETTINGS with SDC

Panel/Group SONAR TRANSMITTER

CHECKLIST
ITEM
17. POWER circuit breaker (sonar transmitter)..... UP (ON)

Purpose: To provide power to sonar transmitter.





NOTE
Power circuit breaker should have been checked UP(ON) during interior preflight.

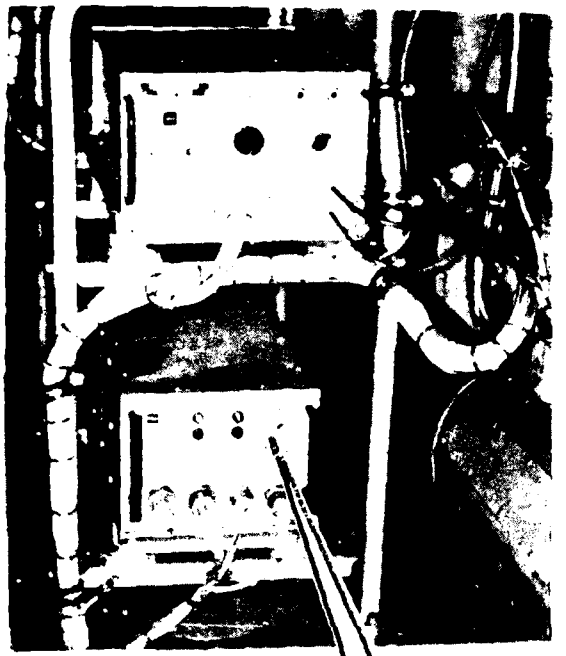
IF
Unsure of power circuit breaker position.
THEN recheck it UP(ON).

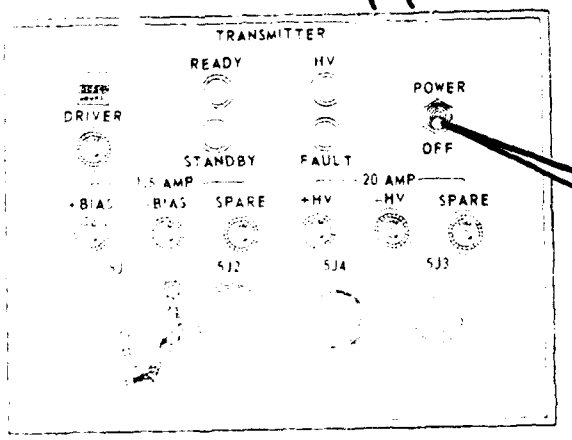
AQS-13E INITIAL CONTROL SETTINGS with SDC

Panel/Group SONAR TRANSMITTER

CHECKLIST
ITEM
17. POWER circuit breaker (sonar transmitter)..... __ (__)

Purpose: To provide power to sonar transmitter.





NOTE
Power circuit breaker should have been checked __(ON) during interior preflight.

IF
Unsure of power circuit breaker position.
THEN recheck it __(ON).

AQS-13E INITIAL CONTROL SETTINGS

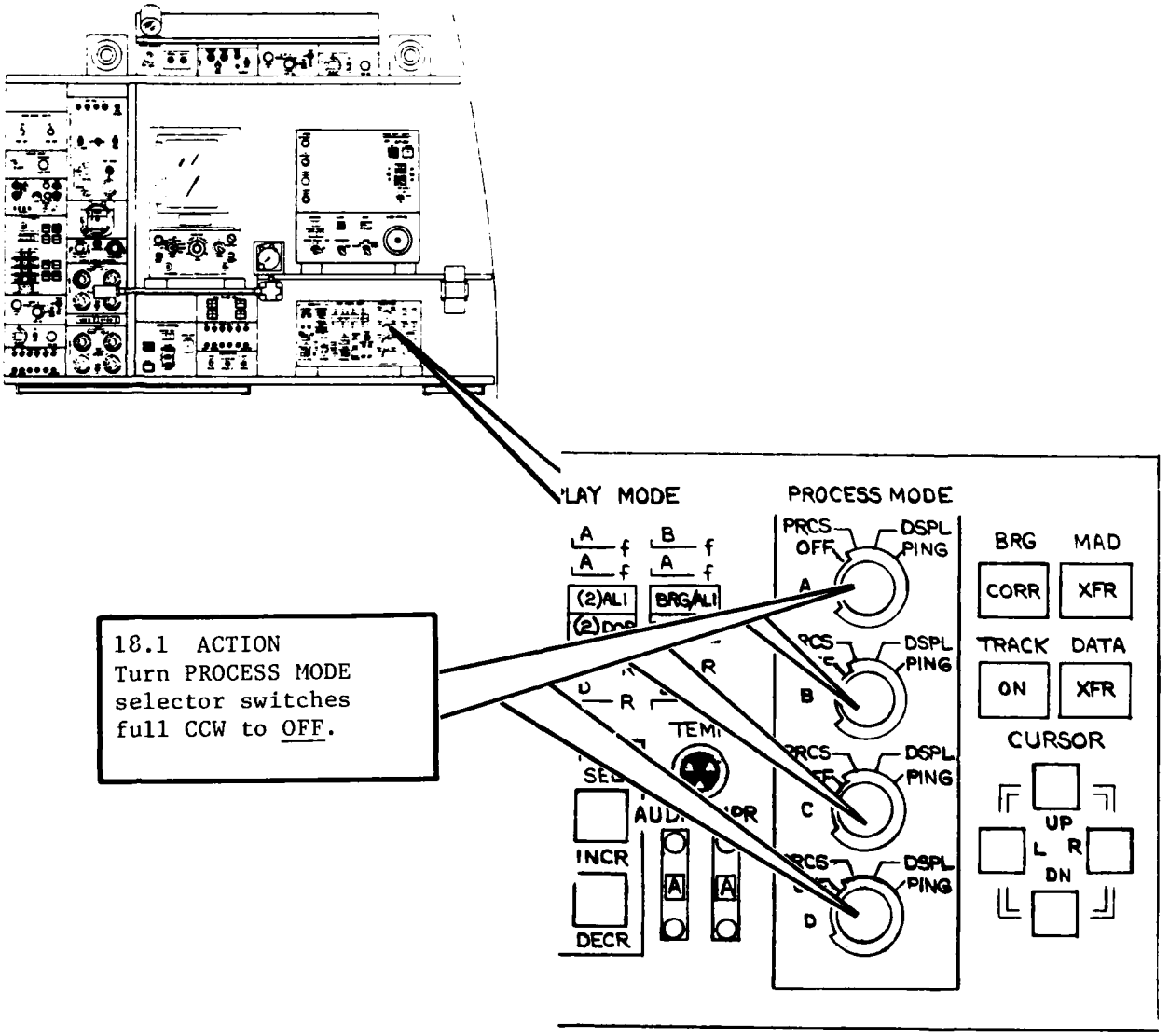
Panel/Group SONAR DATA COMPUTER

CHECKLIST

ITEM

18. SDC PROCESS MODE selector switches channels A thru D..... OFF

Purpose: Disable sonobuoy processing mode.



AQS-13E INITIAL CONTROL SETTINGS

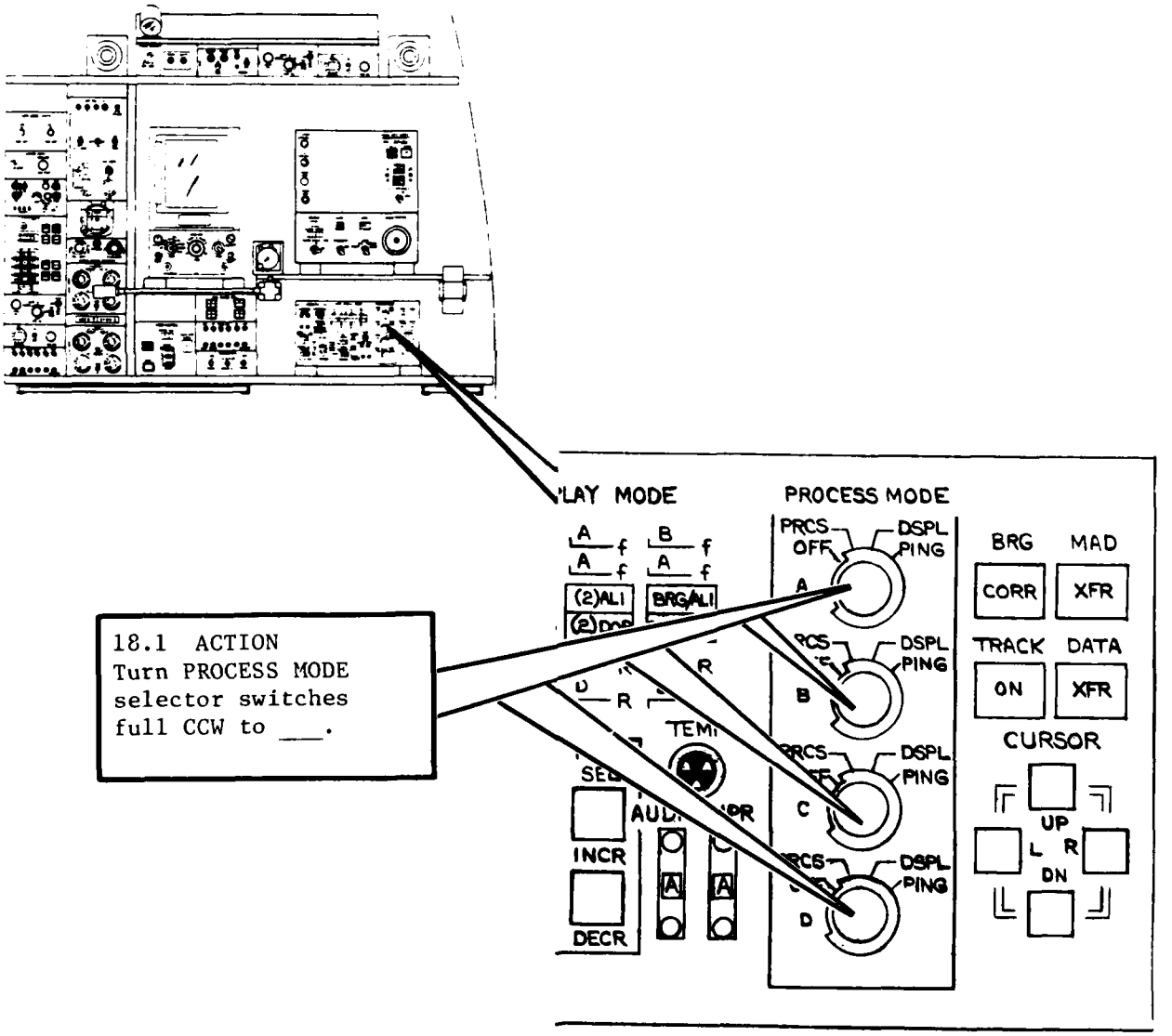
Panel/Group SONAR DATA COMPUTER

CHECKLIST

ITEM

18. SDC PROCESS MODE selector switches channels A thru D..... ___

Purpose: Disable sonobuoy processing mode.



AQS-13E INITIAL CONTROL SETTINGS

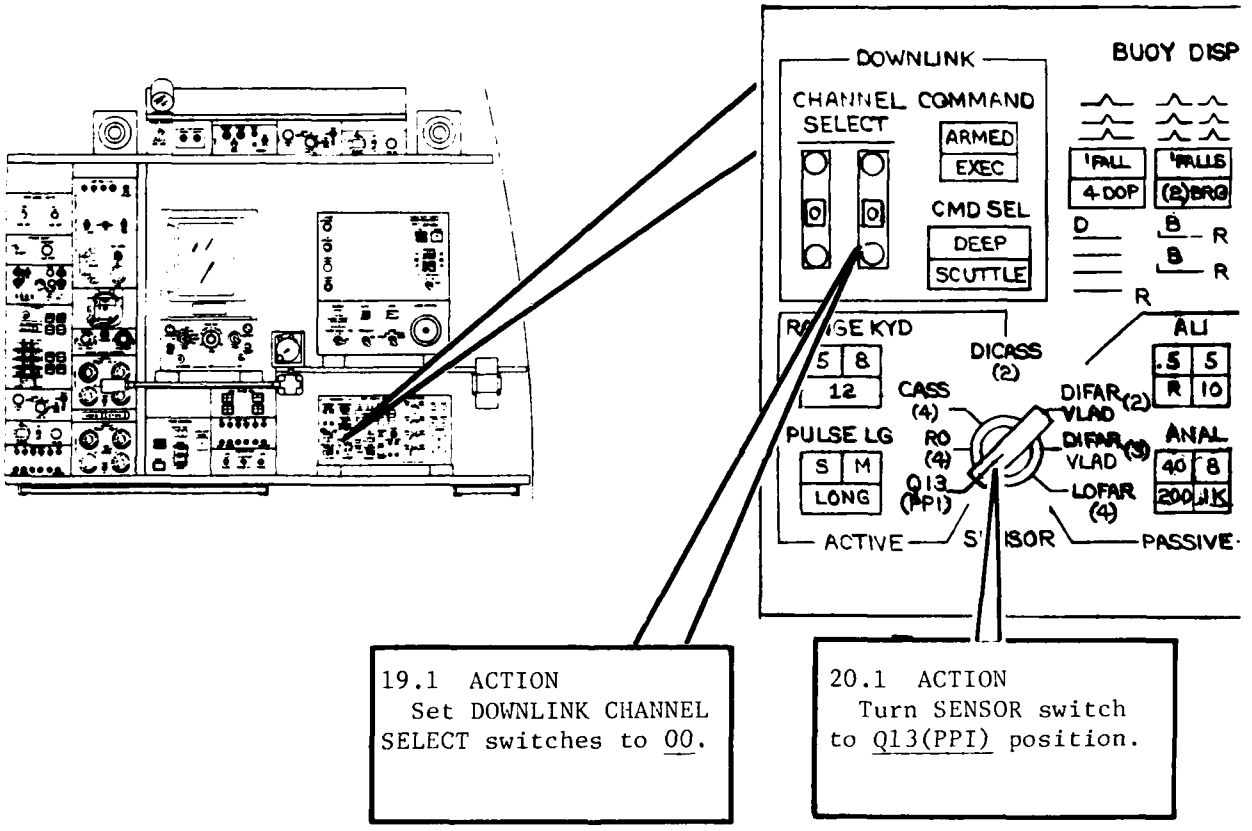
Panel/Group SONAR DATA COMPUTER

CHECKLIST

ITEM

19. SDC DOWNLINK CHANNEL SELECT switches..... 00
20. SDC SENSOR switch..... Q13 (PPI)

Purpose: Set downlink to null channel. Set SDC to Q13 mode of operation.



19.1 ACTION
Set DOWNLINK CHANNEL SELECT switches to 00.

20.1 ACTION
Turn SENSOR switch to Q13(PPI) position.

AQS-13E INITIAL CONTROL SETTINGS

Panel/Group SONAR DATA COMPUTER

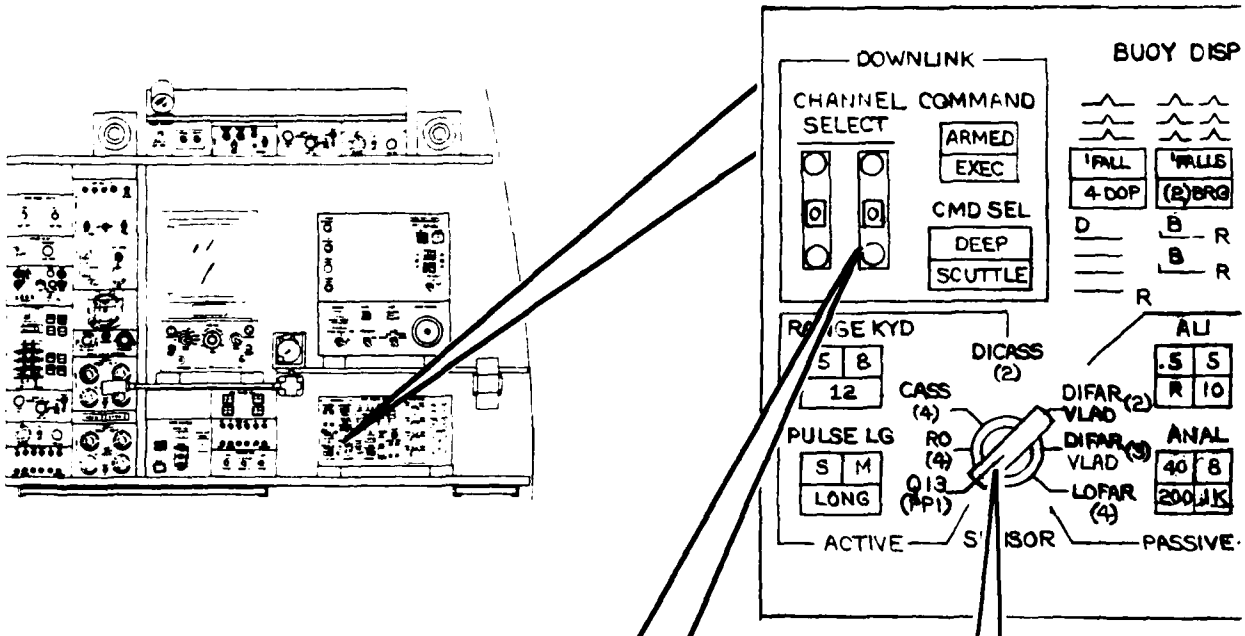
CHECKLIST

ITEM

19. SDC DOWNLINK CHANNEL SELECT switches..... __

20. SDC SENSOR switch..... __ __

Purpose: Set downlink to null channel. Set SDC to Q13 mode of operation.



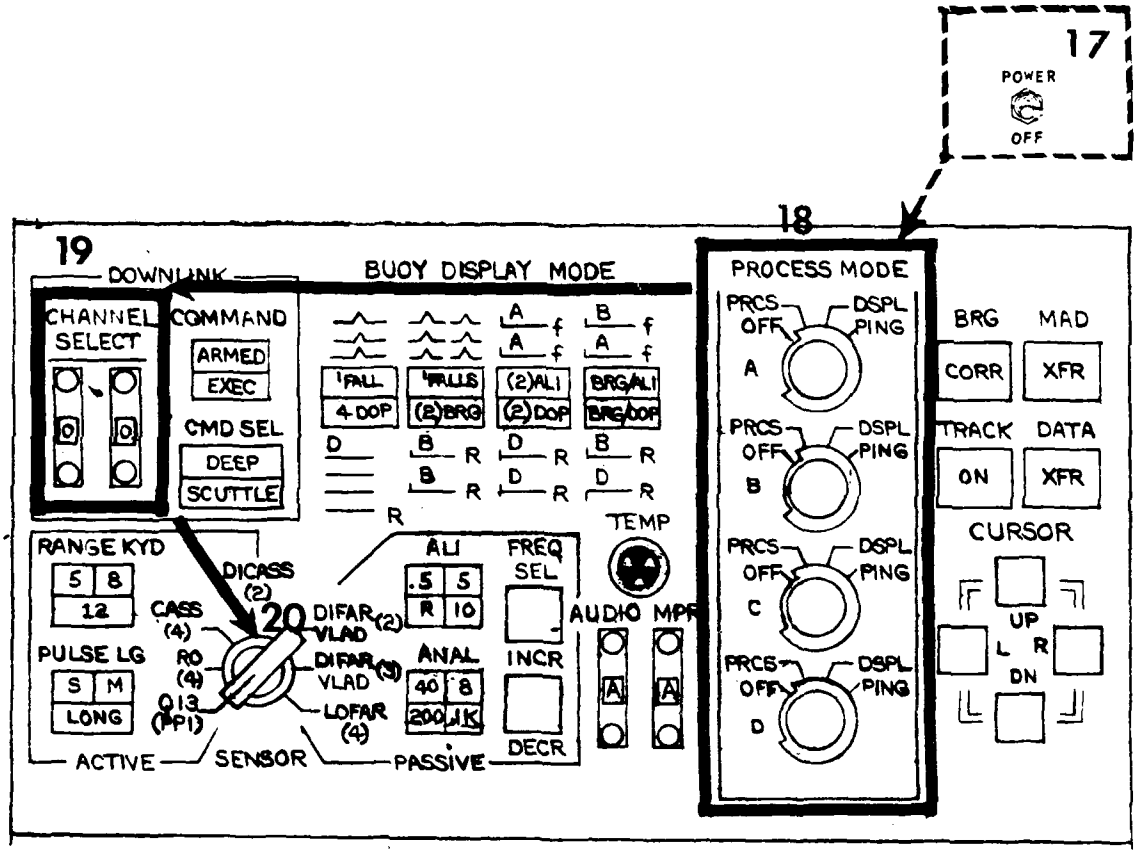
19.1 ACTION
Set DOWNLINK CHANNEL SELECT switches to __.

20.1 ACTION
Turn SENSOR switch to _____ position.

ROAD MAP

- With your finger, trace the steps
- Recall (1) how to perform, (2) systems response
- Look up answers if you need help
- Keep practicing until you can describe steps without error or hesitation

Item 18: SDC PROCESS MODE SELECTOR switches.....
19: SDC DOWNLINK CHANNEL SELECT switches.....
20: SDC SENSOR switch.....



GO TO PAPER MOCK-UP

- Step through all items
- Touch where each action and response takes place
- Recall exact action for each item

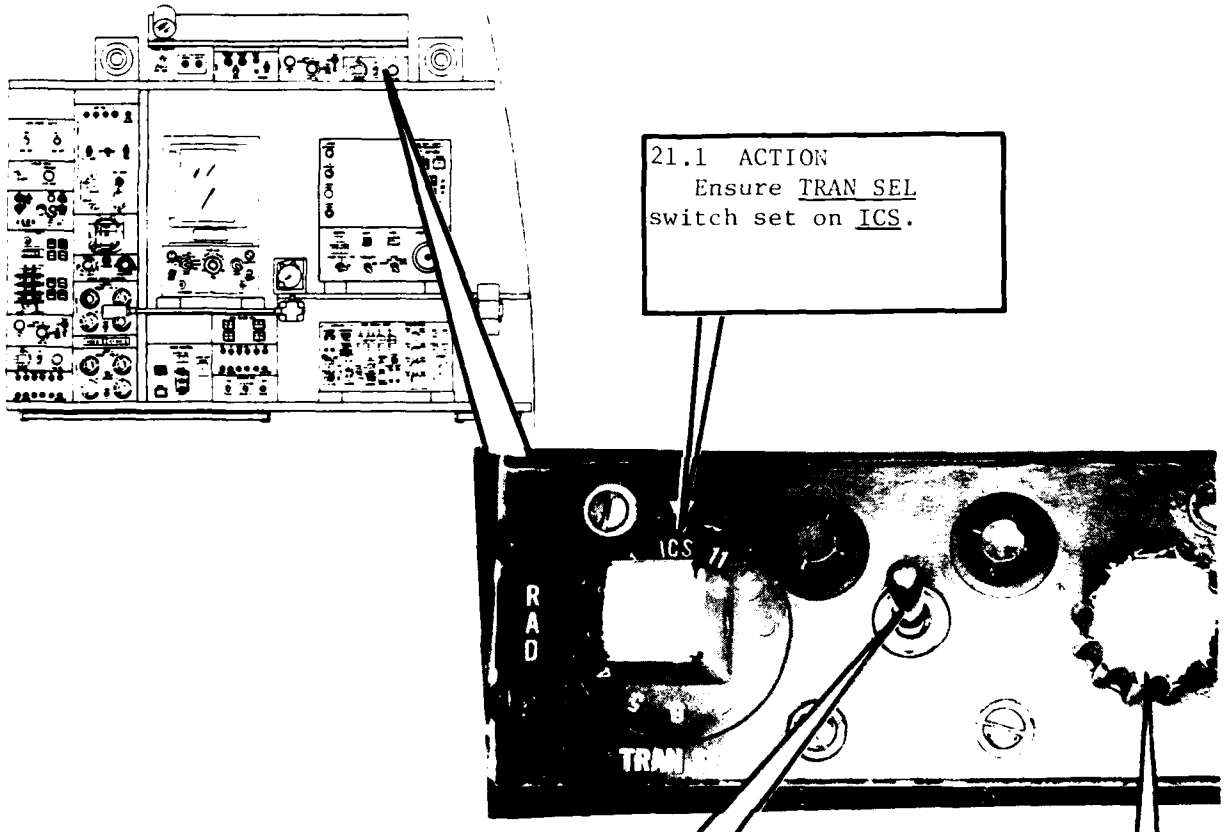
Panel/Group TRANSMITTER SELECTOR

CHECKLIST

ITEM

21. TRANS SEL switch (transmitter selector panel)..... ICS
22. ICS ON/OFF switch (transmitter selector panel)..... ON
23. RAD VOL control (transmitter selector panel)..... 3/4 to FULL CW

Purpose: Set ICS controls to normal position.



21.1 ACTION
Ensure TRAN SEL switch set on ICS.

22.1 ACTION
Ensure ICS ON/OFF switch set on ON position.

23.1 ACTION
Turn RAD VOL 3/4 to full clockwise.

AQS-13B SONAR

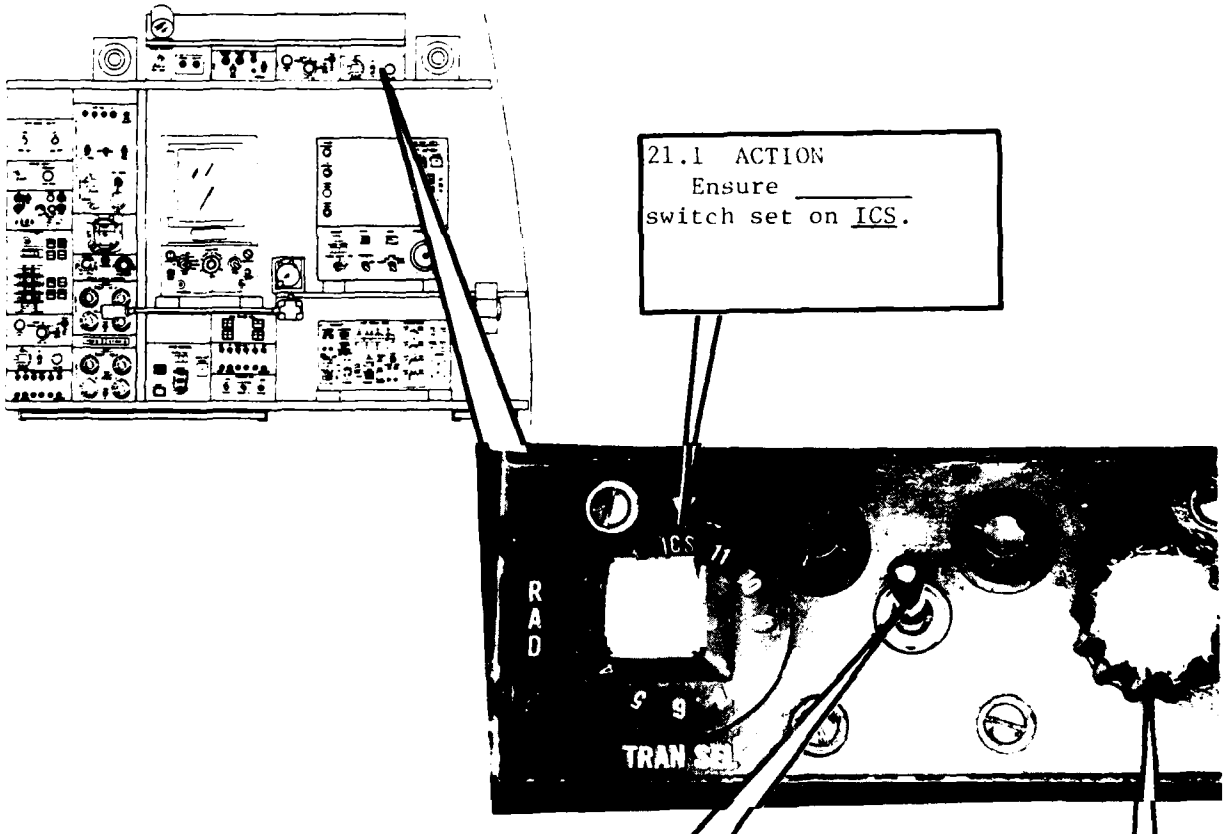
Panel/Group TRANSMITTER SELECTOR

CHECKLIST

ITEM

21. TRANS SEL switch (transmitter selector panel)..... ICS
22. ICS ON/OFF switch (transmitter selector panel)..... __
23. RAD VOL control (transmitter selector panel)..... ___ to FULL __

Purpose: Set ICS controls to normal position.



AQS-13B SONAR

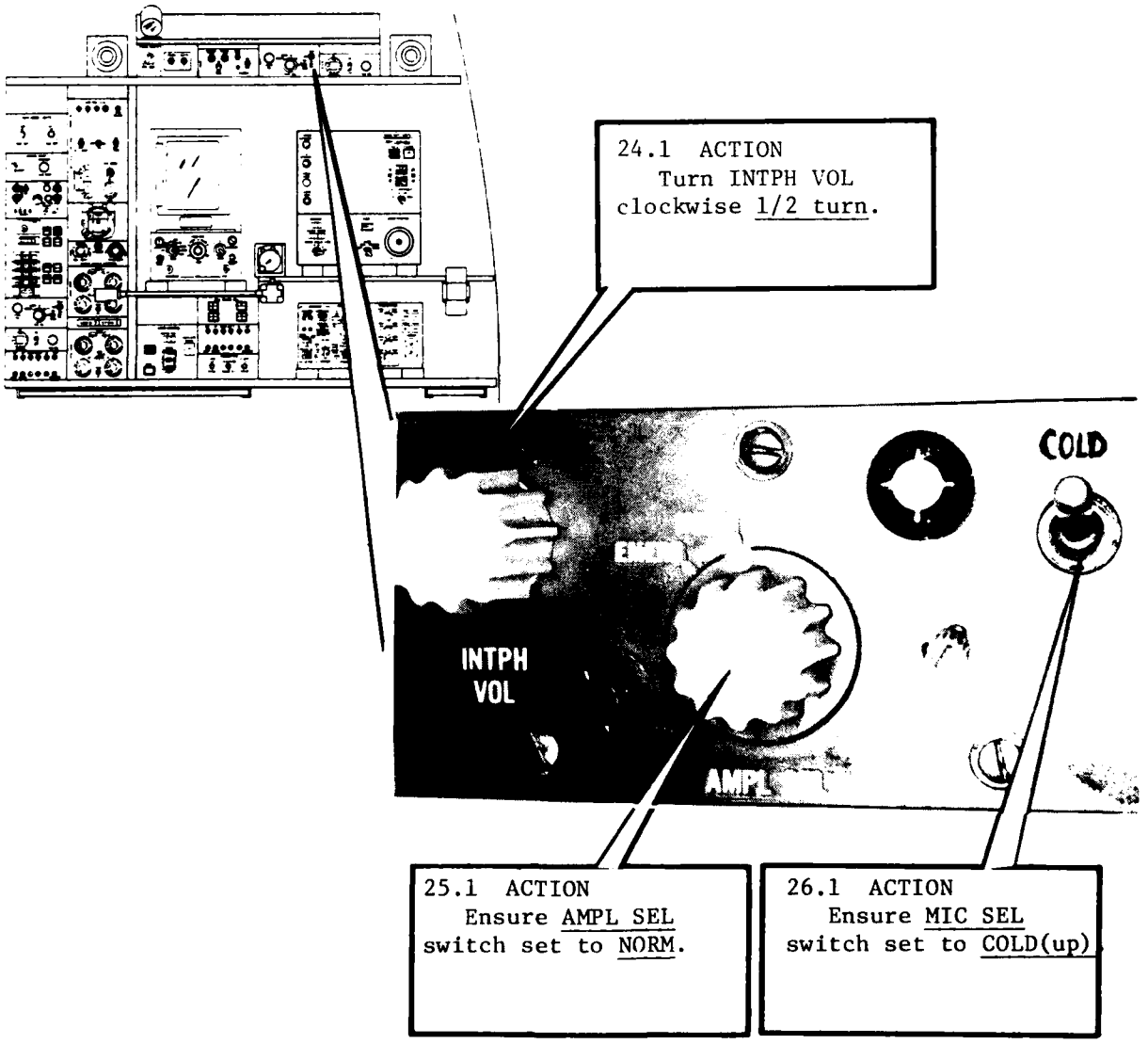
Panel/Group ICS MASTER CONTROL

CHECKLIST

ITEM

24.	INTPH VOL control (ICS master control panel).....	MIDPOSITION
25.	AMPL SEL switch (ICS master control panel).....	NORM
26.	MIC SEL switch (ICS master control panel).....	COLD

Purpose: Set ICS controls to normal position.



AQS-13B SONAR

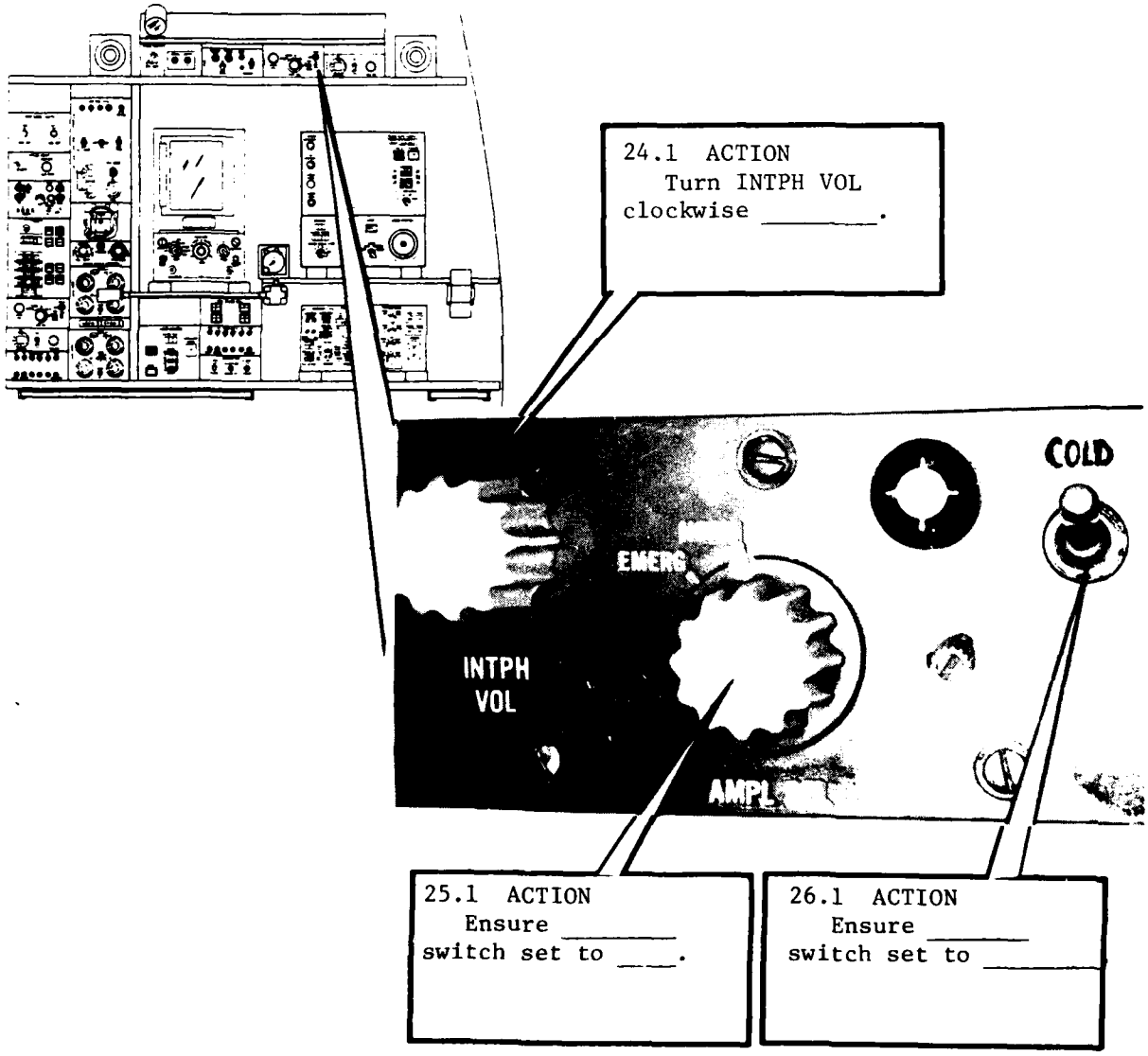
Panel/Group ICS MASTER CONTROL

CHECKLIST

ITEM

24. INTPH VOL control (ICS master control panel)..... _____
25. AMPL SEL switch (ICS master control panel)..... ____
26. MIC SEL switch (ICS master control panel)..... ____

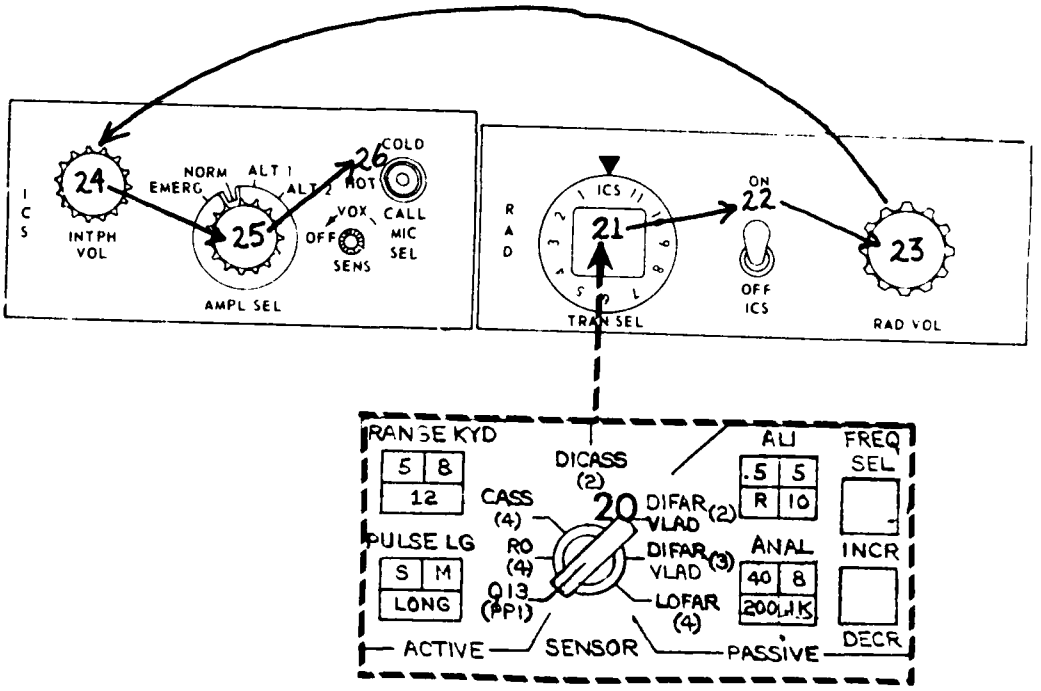
Purpose: Set ICS controls to normal position.



ROAD MAP

- With your finger, trace the steps
- Recall (1) how to perform, (2) systems response
- Look up answers if you need help
- Keep practicing until you can describe steps without error or hesitation

Item 21: TRANS SEL switch (transmitter selector panel).....
22: ICS ON/OFF switch (transmitter selector panel).....
23: RAD VOL control (transmitter selector panel)...
24: INTPH VOL control (ICS master control panel).....
25: AMPL SEL switch (ICS master control panel).....
26: MIC SEL switch (ICS master control panel).....



GO TO PAPER MOCK-UP

- Step through all items
- Touch where each action and response takes place
- Recall exact action for each item

AQS-13E INITIAL CONTROL SETTINGS

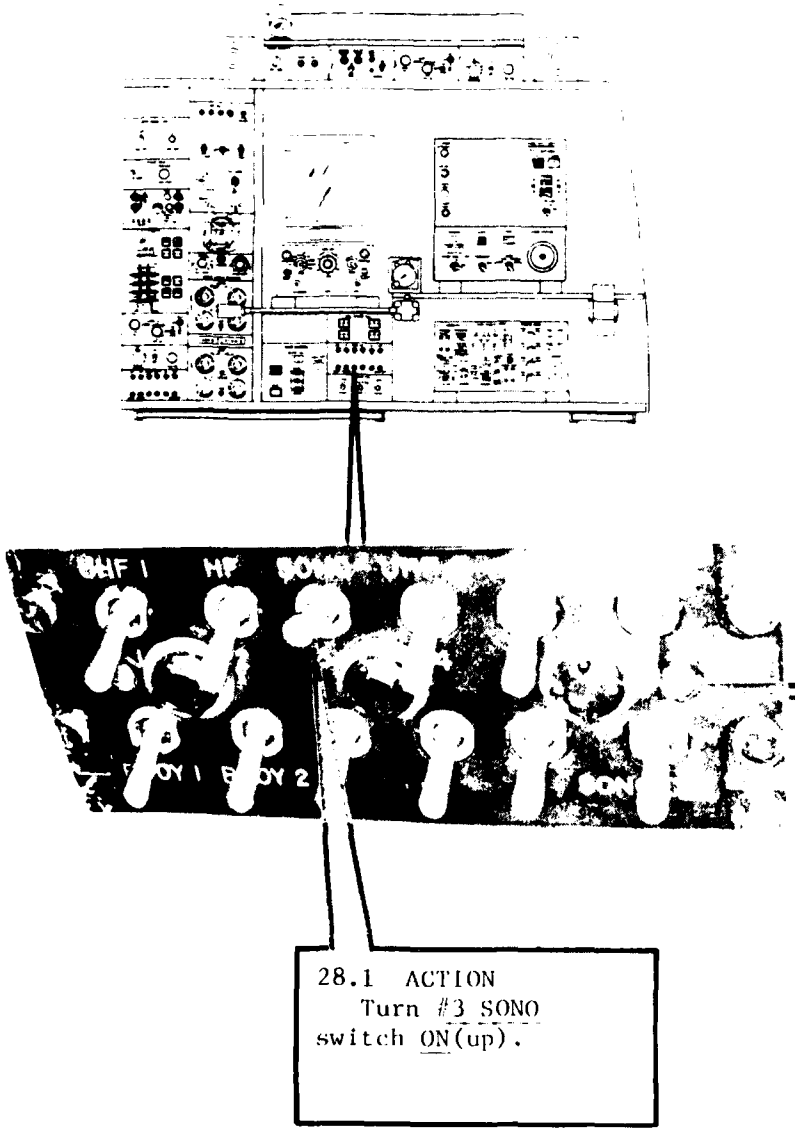
Panel/Group RECEIVER SELECTOR PANEL

CHECKLIST

ITEM

27. Receiver selector panel switches..... OFF
28. SONO switch (receiver selector panel)..... ON

Purpose: Disable all radio; sonar, data link, ADF, and sonobuoy audio. Enable sonar audio.



27.1 ACTION
Ensure all RECEIVER SELECTOR PANEL switches are turned OFF(down).

28.1 ACTION
Turn #3 SONO switch ON(up).

AQS-13E INITIAL CONTROL SETTINGS

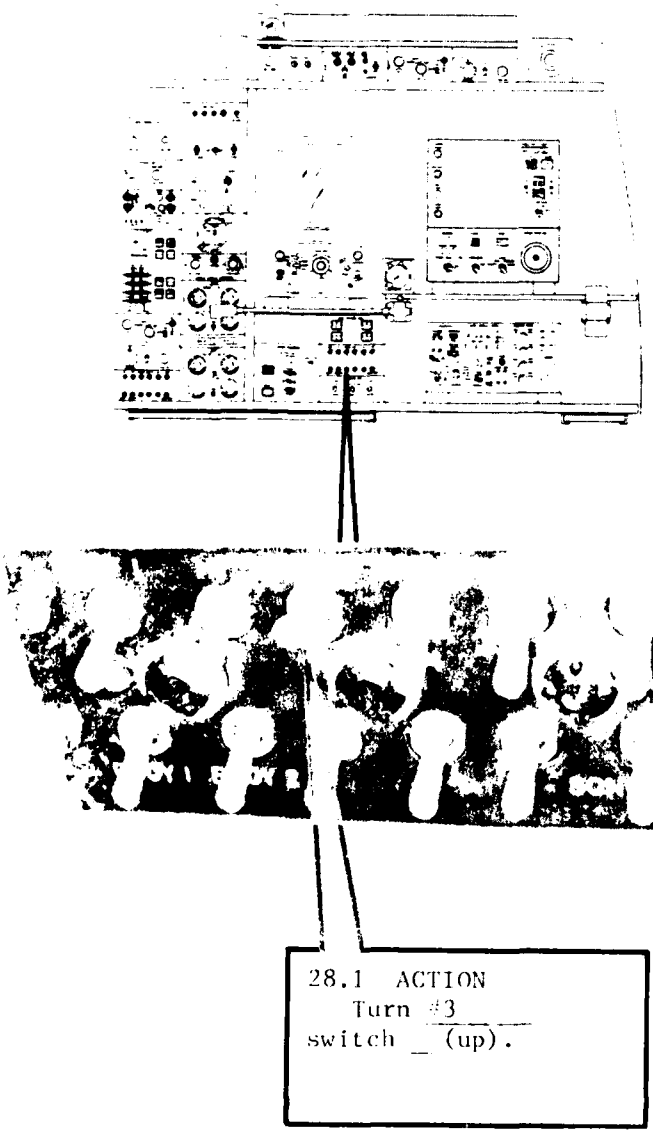
Panel/Group RECEIVER SELECTOR PANEL

CHECKLIST

ITEM

27. Receiver selector panel switches..... ___
28. SONO switch (receiver selector panel)..... ___

Purpose: Disable all radio; sonar, data link, ADF, and sonobuoy audio. Enable sonar audio.



27.1 ACTION
Ensure all _____
_____
switches are turned
___(down).

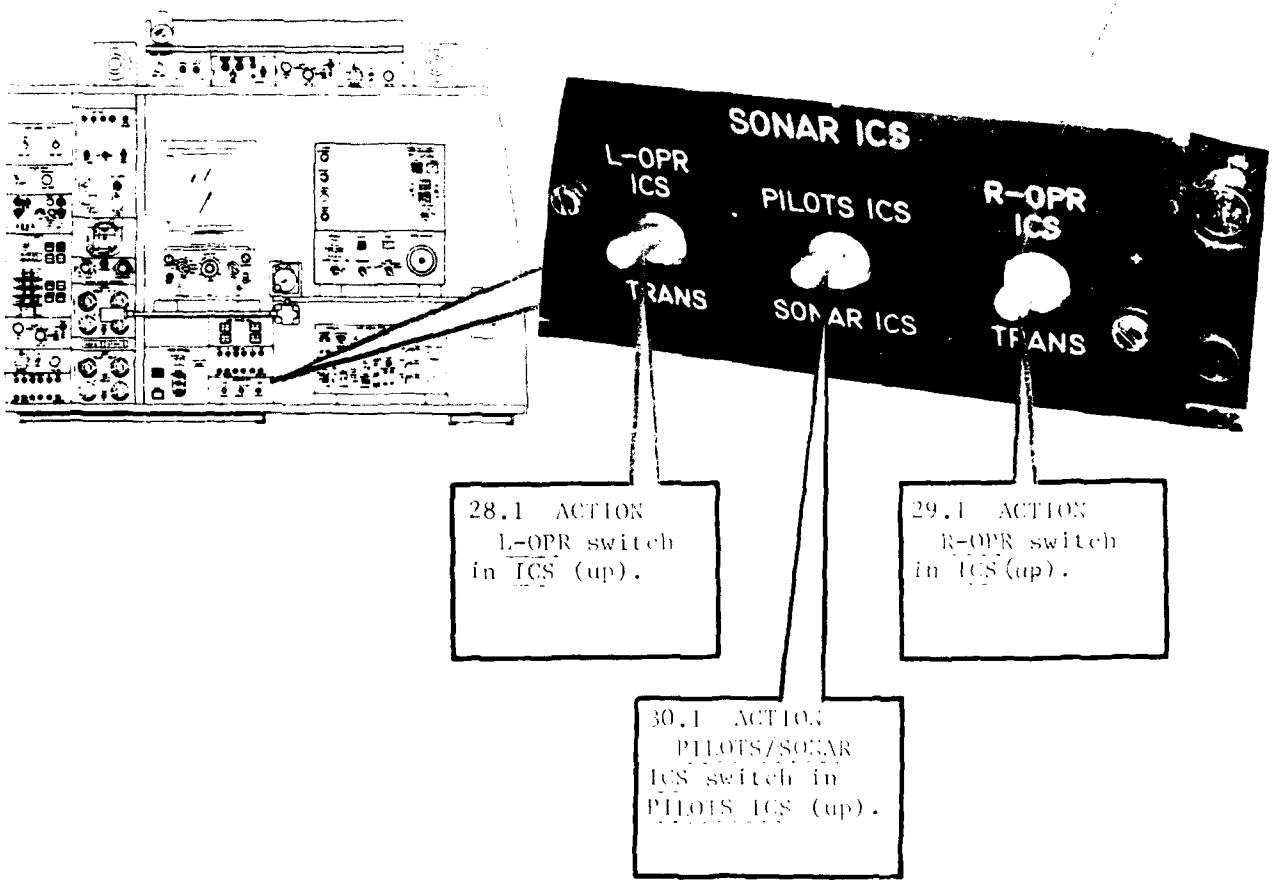
28.1 ACTION
Turn #3 _____
switch _ (up).

AQS-13E INITIAL CONTROL SETTINGS

Panel/Group SONAR ICS TRANSMIT SELECTOR PANEL
CHECKLIST
ITEM

29. L-OPR switch (SONAR ICS transmit selector panel)..... ICS
30. R-OPR switch (SONAR ICS transmit selector panel)..... ICS
31. PILOTS/SONAR ICS switch (SONAR ICS transmit selector panel)..... PILOTS ICS

Purpose: To provide intercommunication between crewman and pilots.



AQS-13E INITIAL CONTROL SETTINGS

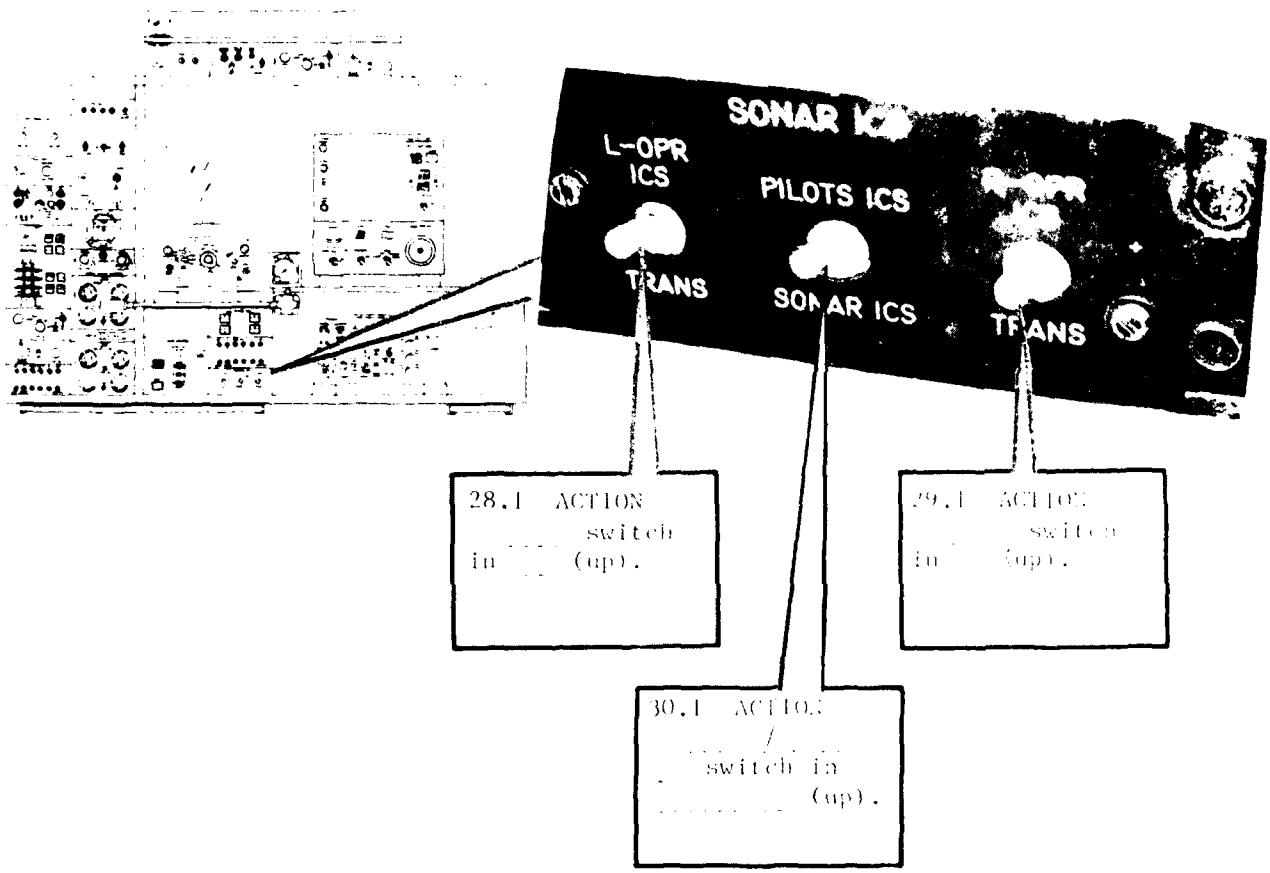
Panel/Group SONAR ICS TRANSMIT SELECTOR PANEL

CHECKLIST

ITEM

29. L-OPR switch (SONAR ICS transmit selector panel).....
30. R-OPR switch (SONAR ICS transmit selector panel).....
31. PILOTS/SONAR ICS switch (SONAR ICS transmit selector panel).....

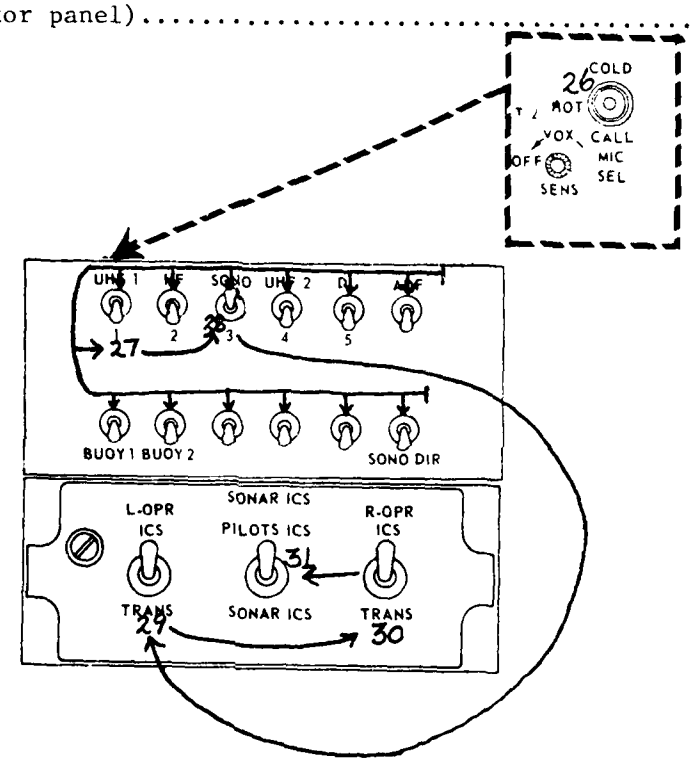
Purpose: To provide intercommunication between crewman and pilots.



ROAD MAP

- With your finger, trace the steps
- Recall (1) how to perform, (2) systems response
- Look up answers if you need help
- Keep practicing until you can describe steps without error or hesitation

Item 27: Receiver selector panel switches.....
28: SONO switch (receiver selector panel).....
29: L-OPR switch (SONAR ICS transmit selector panel).....
30: R-OPR switch (SONAR ICS transmit selector panel).....
31: PILOTS/SONAR ICS switch (SONAR ICS transmit selector panel).....



GO TO PAPER MOCK-UP

- Step through all items
- Touch where each action and response takes place
- Recall exact action for each item

Panel/Group COCKPIT CONSOLE

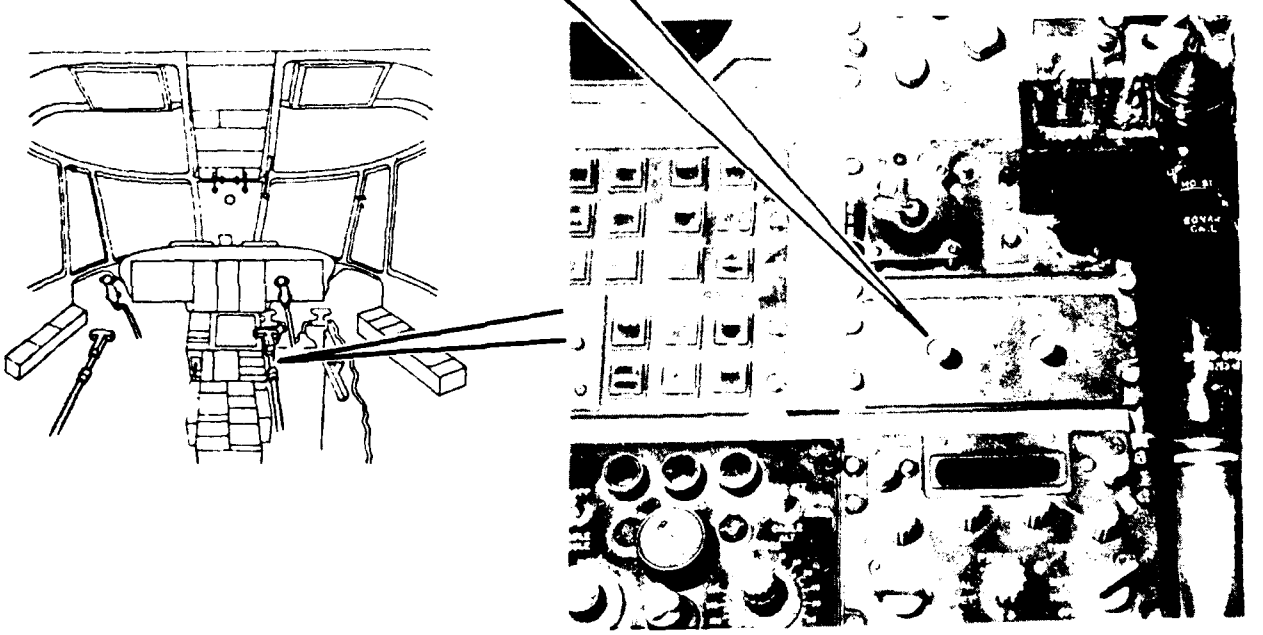
CHECKLIST
ITEM

32. UHF 2 switch (cockpit console)..... COMM

Purpose: Set up UHF 2 for sonobuoy downlink commands.

NOTE:

Check with Pilot that UHF 2 is set to COMM.



AQS-13E INITIAL CONTROL SETTINGS

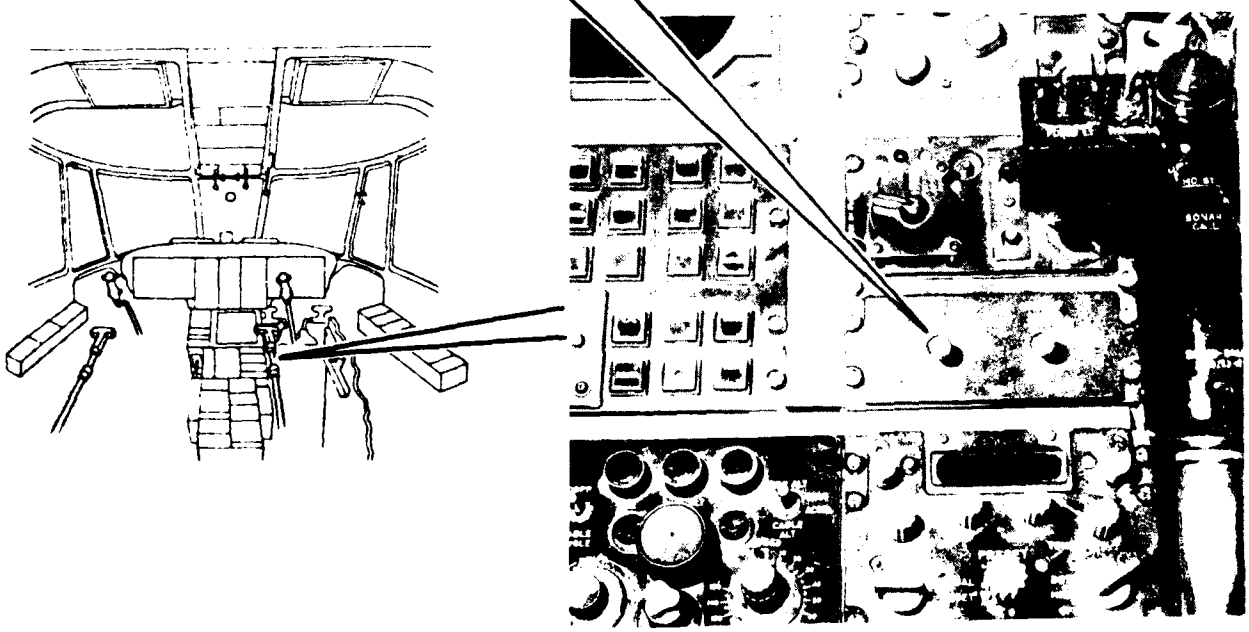
Panel/Group COCKPIT CONSOLE

CHECKLIST
ITEM

32. UHF 2 switch (cockpit console)..... ___

Purpose: Set up UHF 2 for sonobuoy downlink commands.

NOTE:
Check with Pilot that UHF 2 is set to
---.



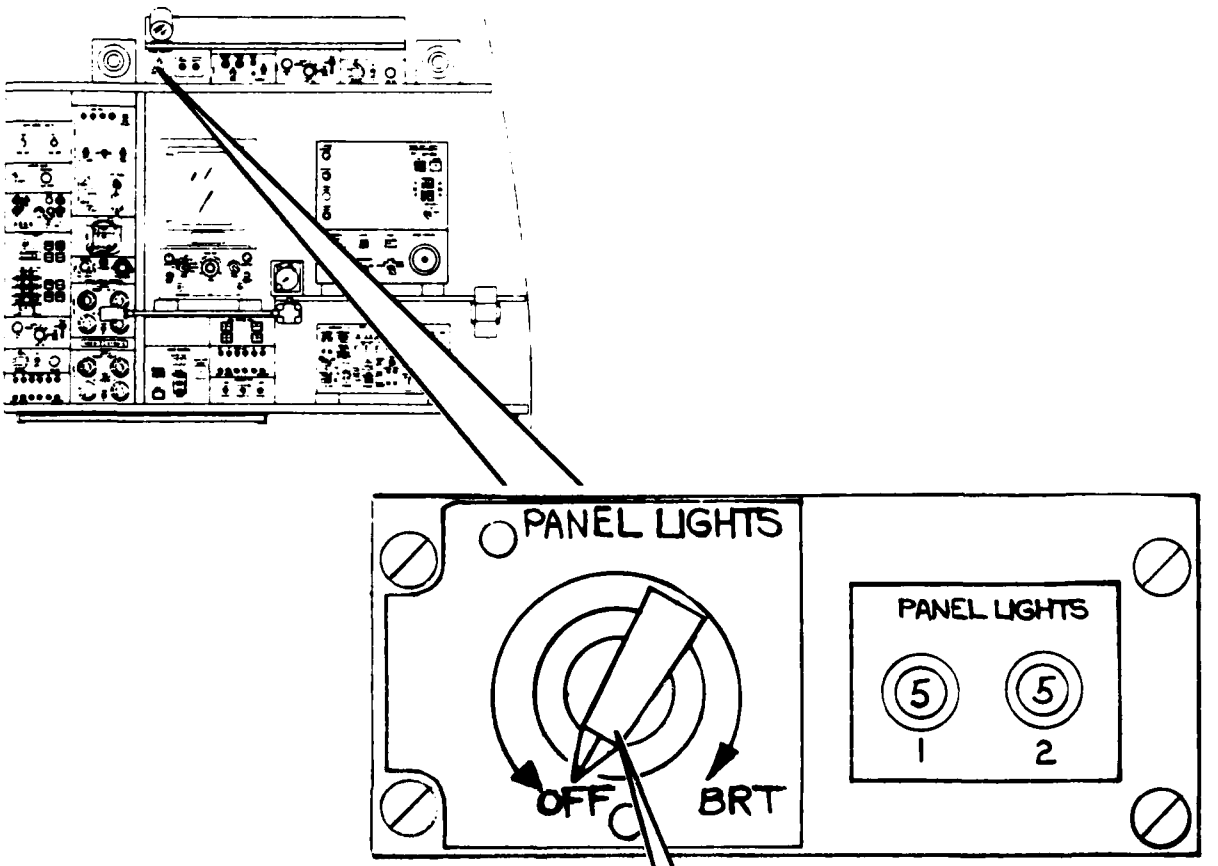
Panel/Group SENSOR OPERATOR'S CONSOLE

CHECKLIST

ITEM

33. PANEL LIGHTS knob (sensor operators console)..... AS DESIRED

Purpose: To turn panel lights on for night operation and off for daylight operation.



33.1 ACTION

Adjust PANEL LIGHTS knob for desired intensity.

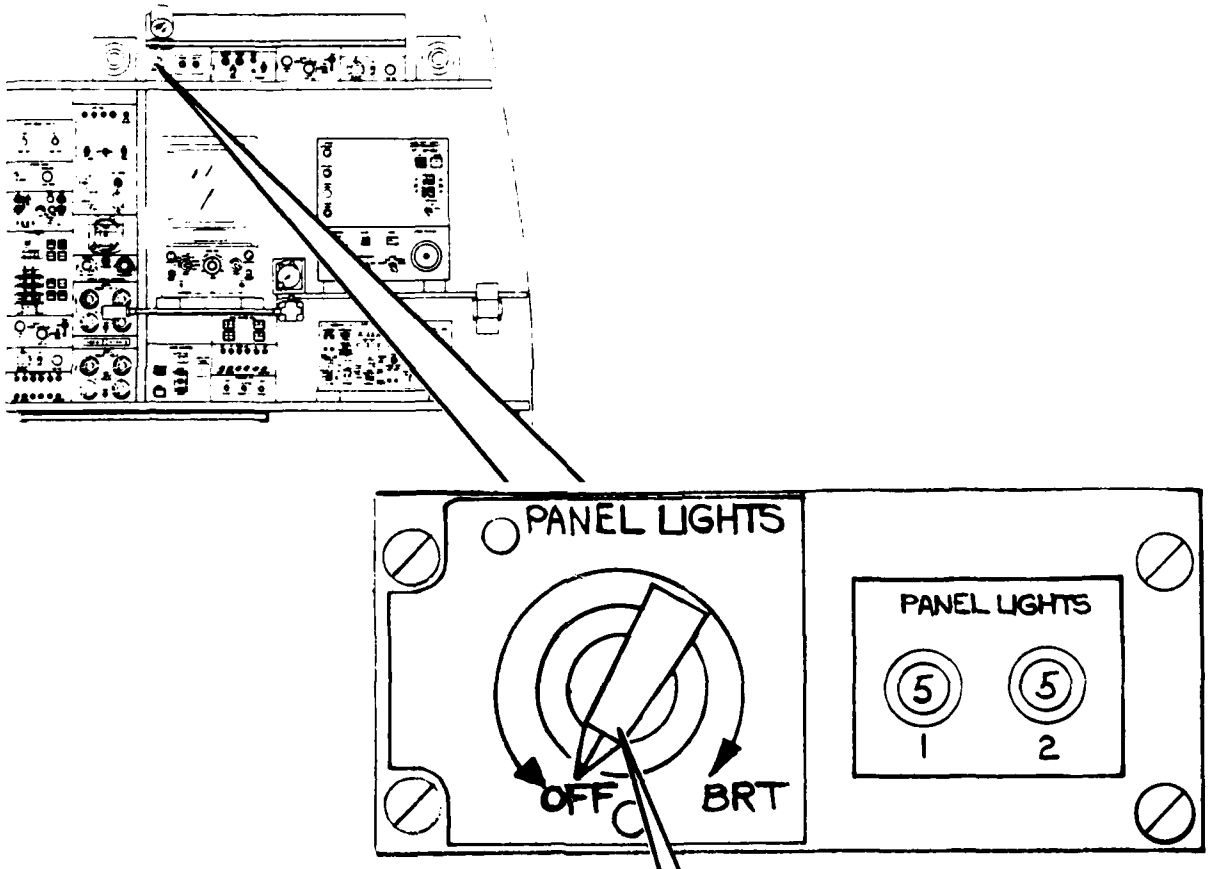
Panel/Group SENSOR OPERATOR'S CONSOLE

CHECKLIST

ITEM

33. PANEL LIGHTS knob (sensor operators console)..... __ _____

Purpose: To turn panel lights on for night operation and off for daylight operation.



33.1 ACTION

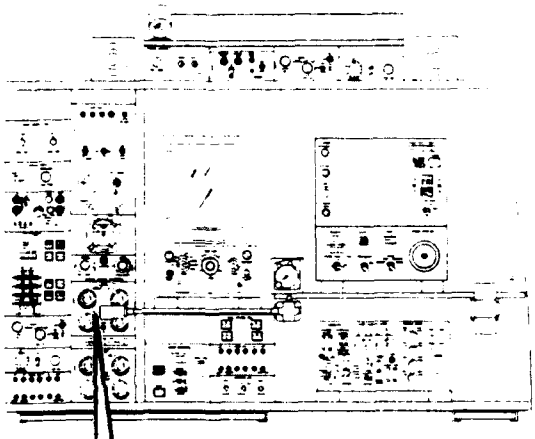
Adjust PANEL LIGHTS knob for _____ intensity.

Panel/Group ABCD SONOBUOY RECEIVER PANEL
CHECKLIST
ITEM

34. POWER switch (ABCD sonobuoy receiver panel)..... POWER

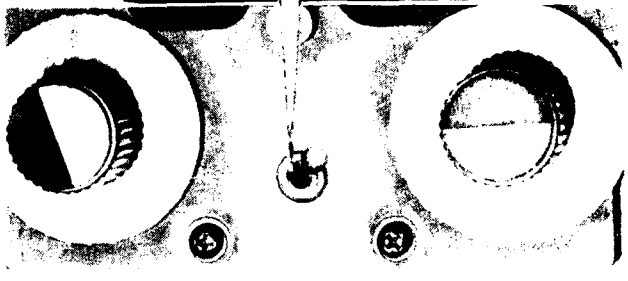
35. A,B,C,D channel switches (sonobuoy receiver panel)..... 1,2,3,4 RESPECTIVELY

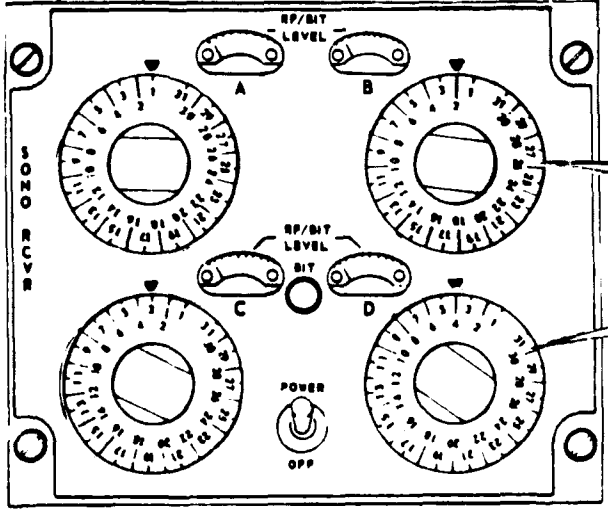
Purpose: Apply power to ABCD sonobuoy receiver panel. Prevent RF duplication alert on SDC RO bite check.



34.1 ACTION

Set POWER switch to POWER (UP).





35.1 ACTION

Turn A,B,C,D channel switches to 1,2,3,4 RESPECTIVELY.

Panel/Group ABCD SONOBUOY RECEIVER PANEL

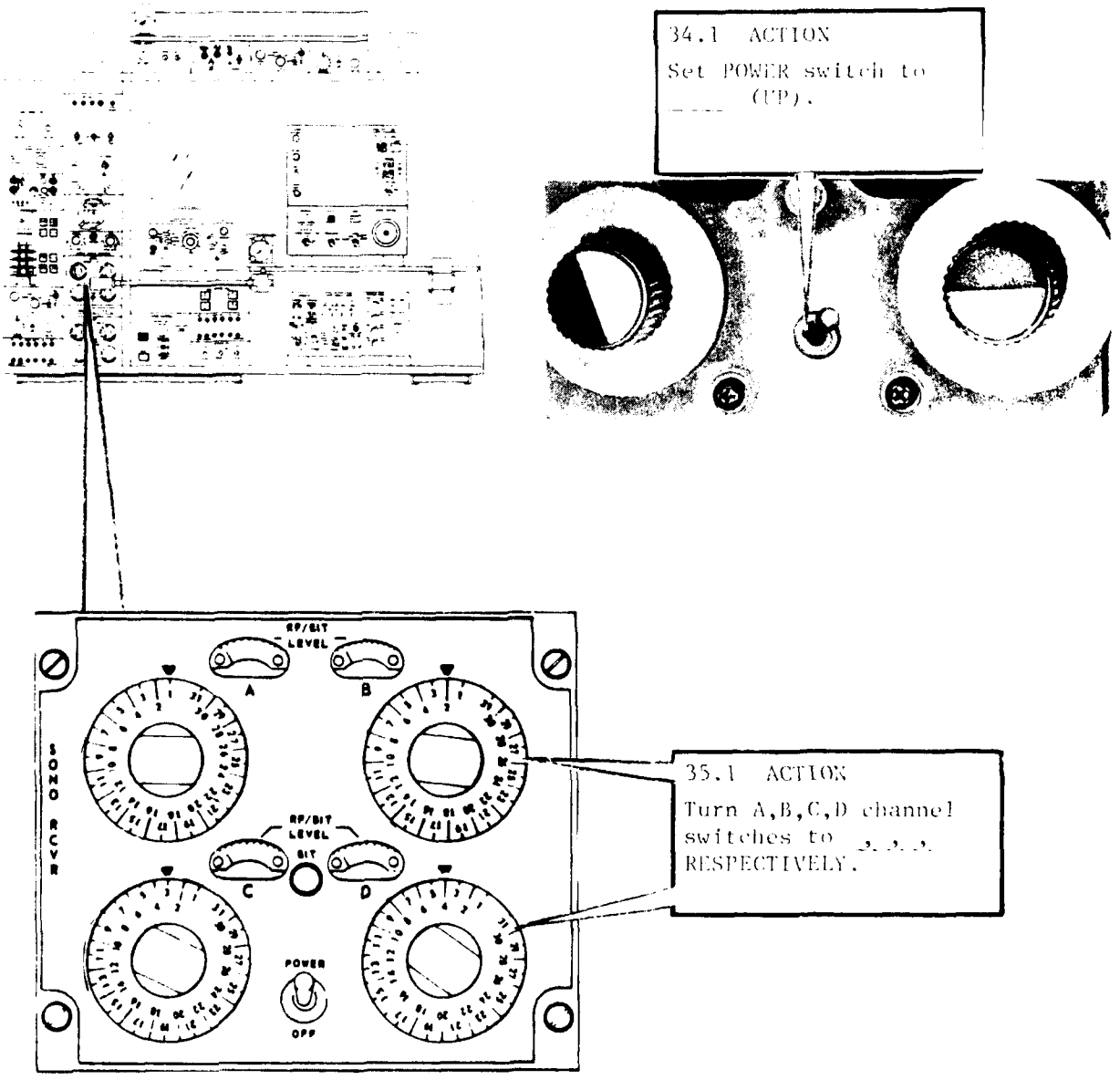
CHECKLIST

ITEM

34. POWER switch (ABCD sonobuoy receiver panel).....

35. A,B,C,D channel switches (sonobuoy receiver panel)..... ,,,,
RESPECTIVELY

Purpose: Apply power to ABCD sonobuoy receiver panel. Prevent RF duplication alert on SDC RO bite check.



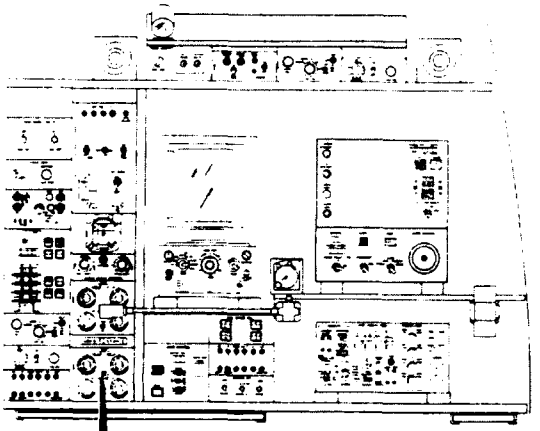
Panel/Group EFGH SONOBUOY RECEIVER PANEL

CHECKLIST

ITEM

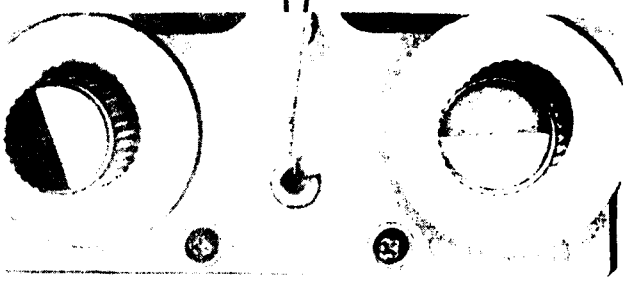
36. POWER switch (EFGH sonobuoy receiver panel)..... POWER
37. E,F,G,H channel switches (sonobuoy receiver panel)..... 5,6,7,8 RESPECTIVELY

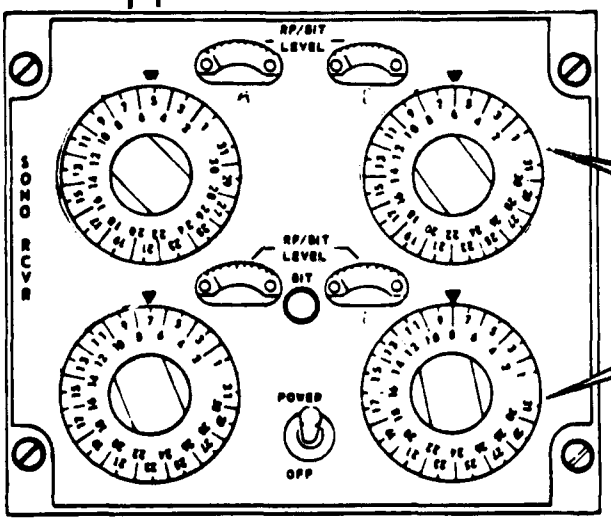
Purpose: Apply power to EFGH sonobuoy receiver panel. Prevent RF duplication on SDC RO bite check.



36.1 ACTION

Set POWER switch to POWER (UP).





37.1 ACTION

Turn E,F,G,H channel switches to 5,6,7,8 RESPECTIVELY.

Panel/Group EFGH SONOBUOY RECEIVER PANEL

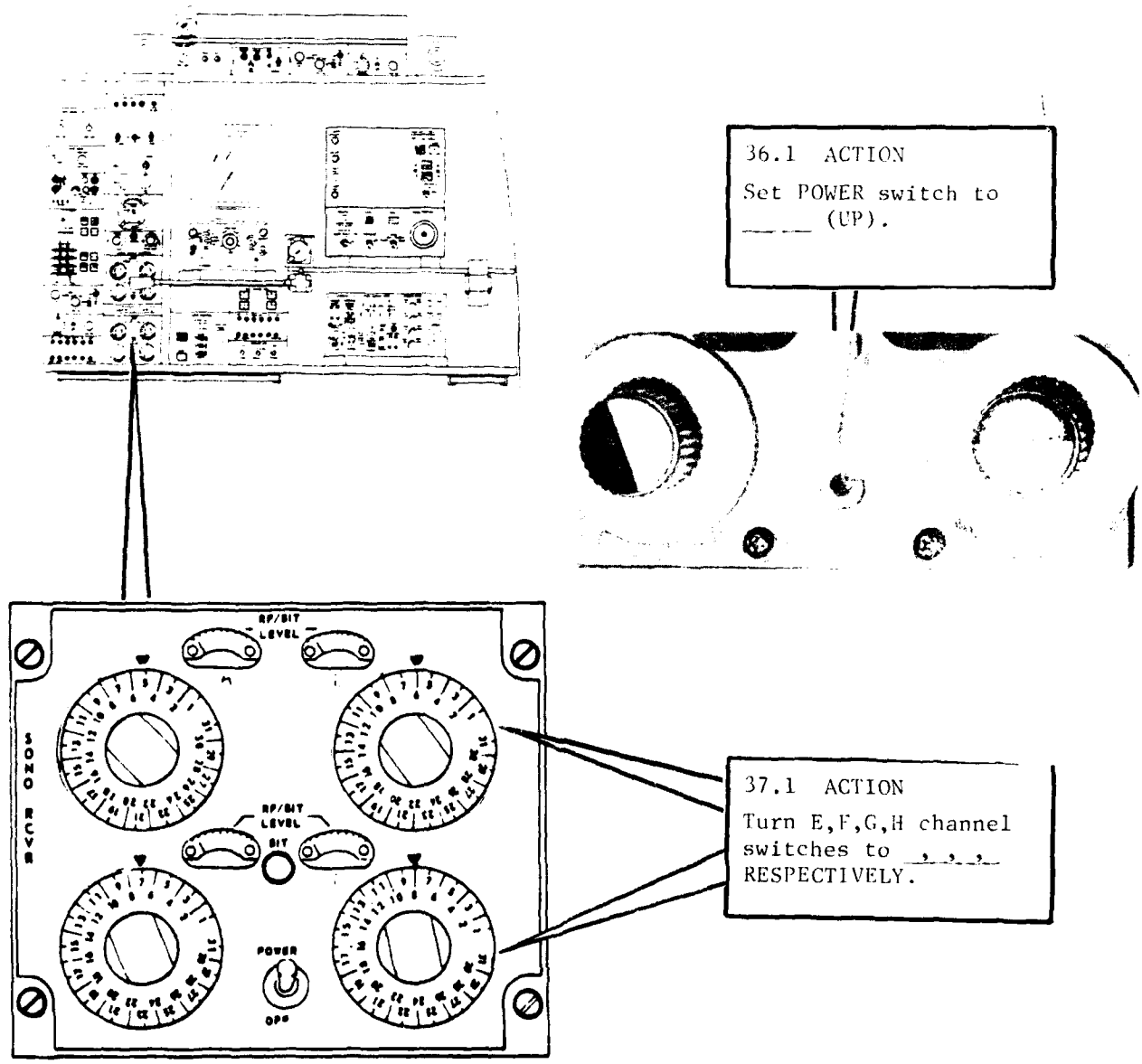
CHECKLIST

ITEM

36. POWER switch (EFGH sonobuoy receiver panel)..... _____

37. E,F,G,H channel switches (sonobuoy receiver panel)..... _,_,_,_ RESPECTIVELY

Purpose: Apply power to EFGH sonobuoy receiver panel. Prevent RF duplication on SDC RO bite check.



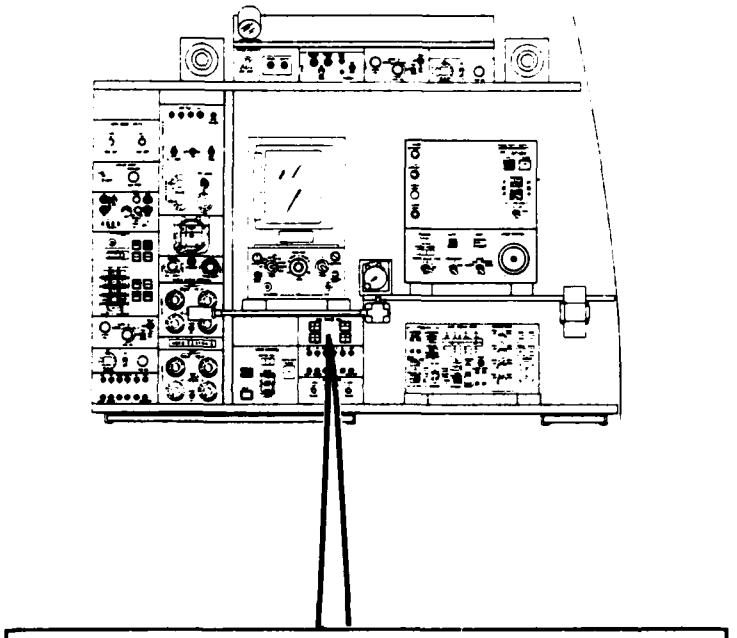
Panel/Group SDC SONOBUOY SELECT PANEL

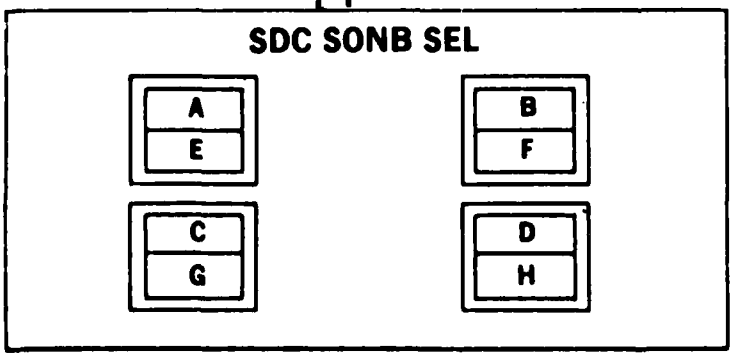
CHECKLIST

ITEM

38. A/E, B/F, C/G, D/H pushbuttons (SDC SONB SEL panel).....A,B,C,D ILLUMINATED

Purpose: Select sonobuoy channels A,B,C,D for display





38.1

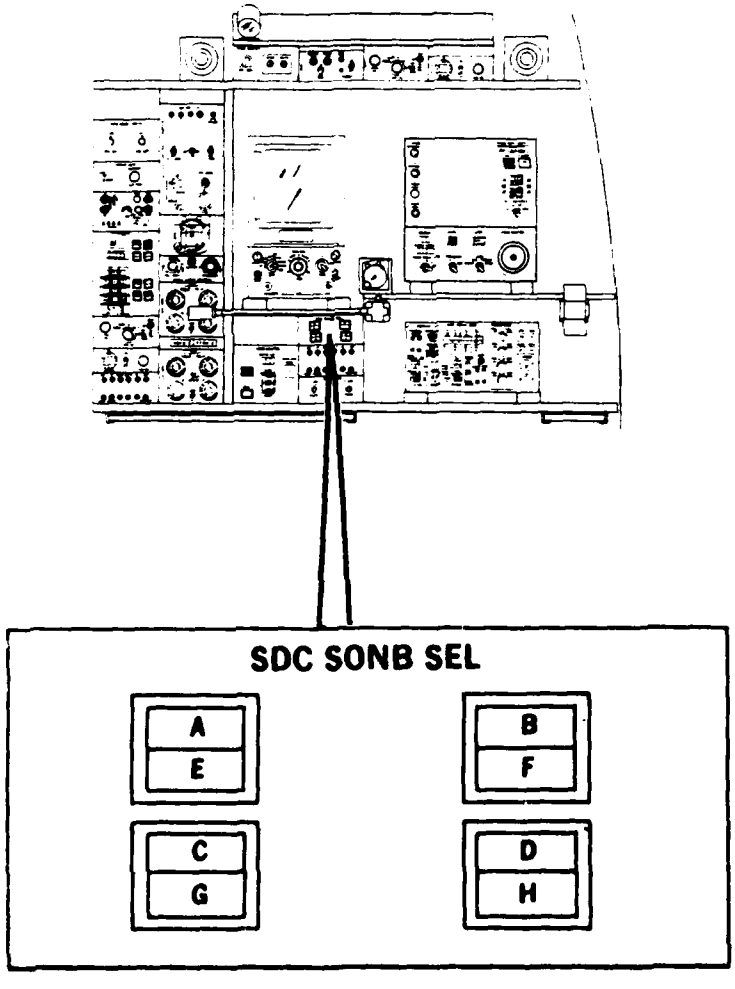
If A/E, B/F, C/G, D/H pushbuttons not illuminated A,B,C,D..... THEN press and release individual pushbuttons as required until proper indications appear.

Panel/Group SDC SONOBUOY SELECT PANEL

CHECKLIST
ITEM

38. A/E, B/F, C/G, D/H pushbuttons (SDC SONB SEL panel).....A,B,C,D ILLUMINATED

Purpose: Select sonobuoy channels A,B,C,D for display



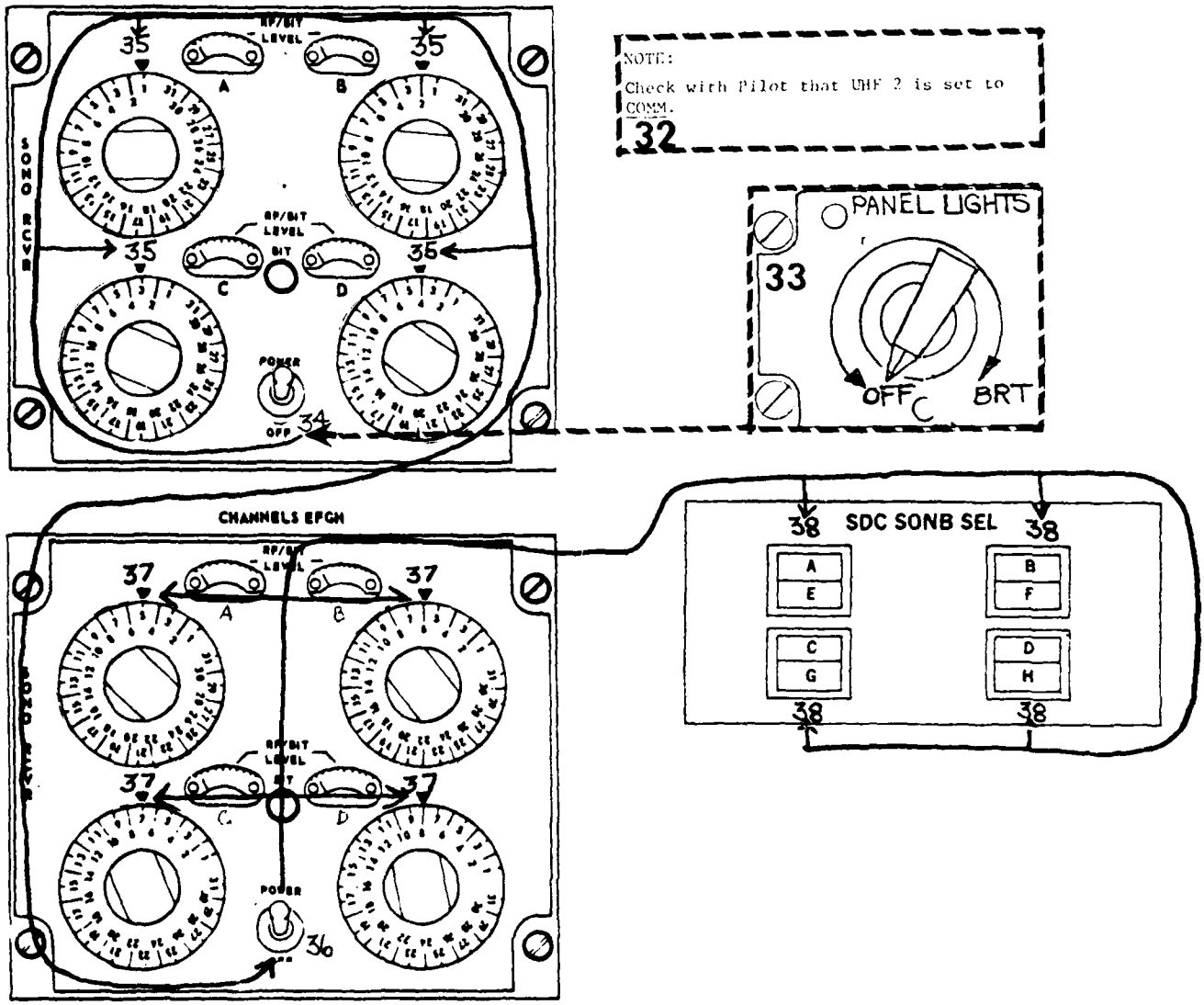
38.1

If A/E, B/F, C/G, D/H pushbuttons not illuminated _,_,_,_..... THEN press and release individual pushbuttons as required until proper indications appear.

ROAD MAP

- With your finger, trace the steps
- Recall (1) how to perform, (2) systems response
- Look up answers if you need help
- Keep practicing until you can describe steps without error or hesitation

Item 34: POWER switch (ABCD sonobuoy receiver panel.....
35: A,B,C,D channel switches.....
36: POWER switch (EFGH sonobuoy receiver panel).....
37: E,F,G,H channel switches.....
38: A/E,B/F,C/G,D/H pushbuttons.....



GO TO PAPER MOCK-UP

- Step through all items
- Touch where each action and response takes place
- Recall exact action for each item

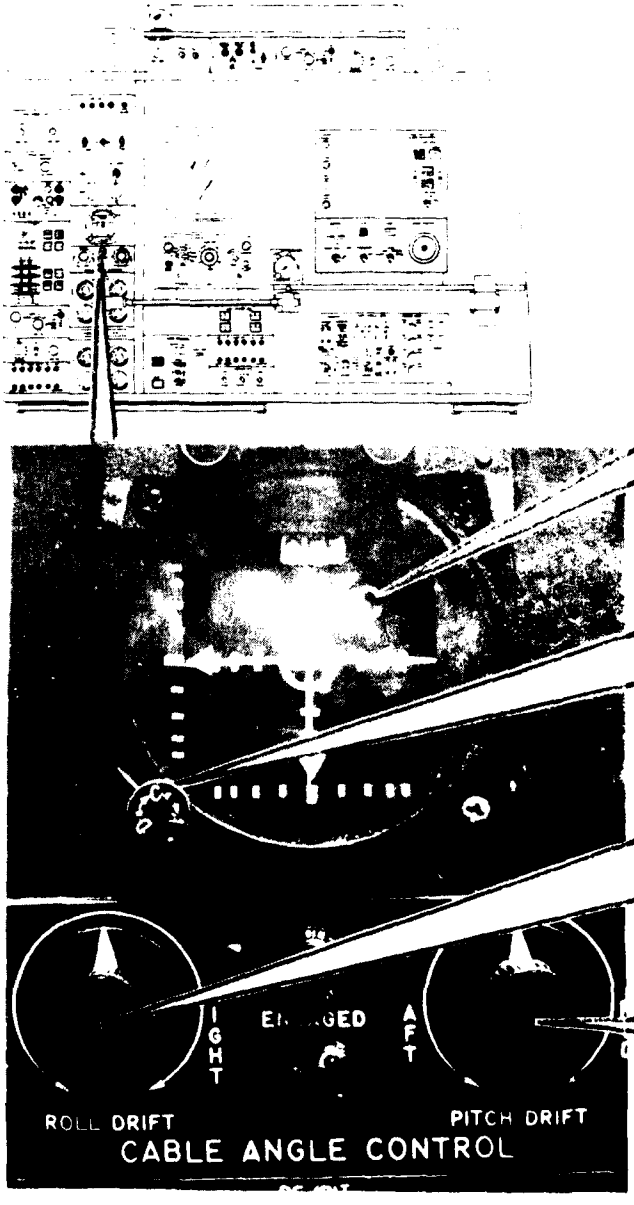
Panel/Group CABLE ANGLE CONTROL PANEL

CHECKLIST

ITEM

39. Hover indicator..... C MODE
40. ROLL DRIFT control (cable angle control panel)..... MIDPOSITION
41. PITCH DRDIFT control (cable angle control panel).... MIDPOSITION

Purpose: To ensure Hover Indicator in C MODE for cable Angle monitoring. To ensure ROLL DRIFT and PITCH DRIFT are set to null position.



39.1 IF
Hover Indicator not in C MODE...

39.2 THEN
Turn A,C,D knob until in "C" MODE

40.1 ACTION

Set ROLL DRIFT knob to MIDPOSITION (arrow straight up)

41.1 ACTION

Set PITCH DRIFT knob to MIDPOSITION (arrow straight up)

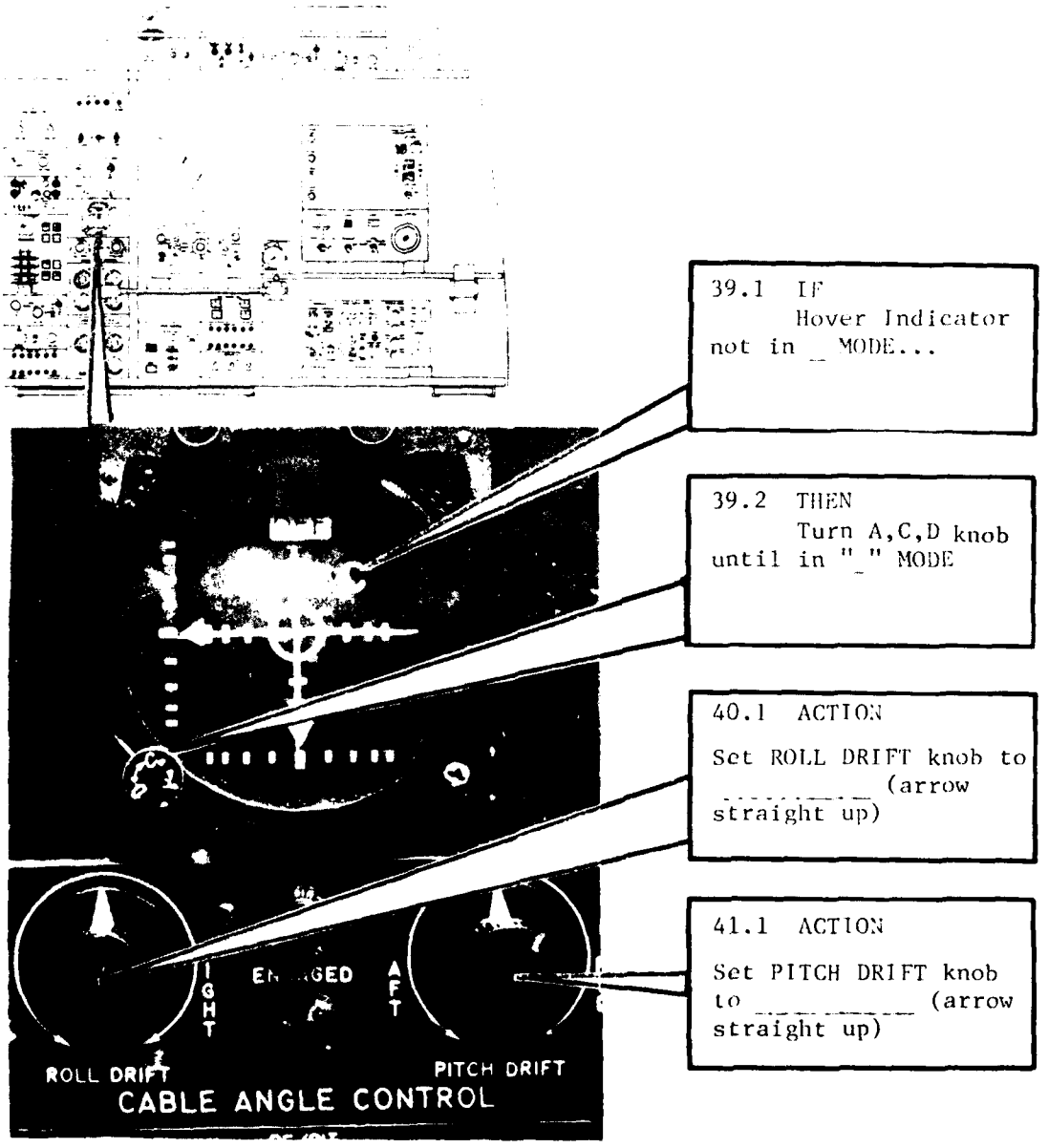
Panel/Group CABLE ANGLE CONTROL PANEL

CHECKLIST

ITEM

39. Hover indicator..... _____
40. ROLL DRIFT control (cable angle control panel)..... _____
41. PITCH DRIFT control (cable angle control panel).... _____

Purpose: To ensure Hover Indicator in C MODE for cable Angle monitoring. To ensure ROLL DRIFT and PITCH DRIFT are set to null position.



39.1 IF
Hover Indicator not in _ MODE...

39.2 THEN
Turn A,C,D knob until in "_" MODE

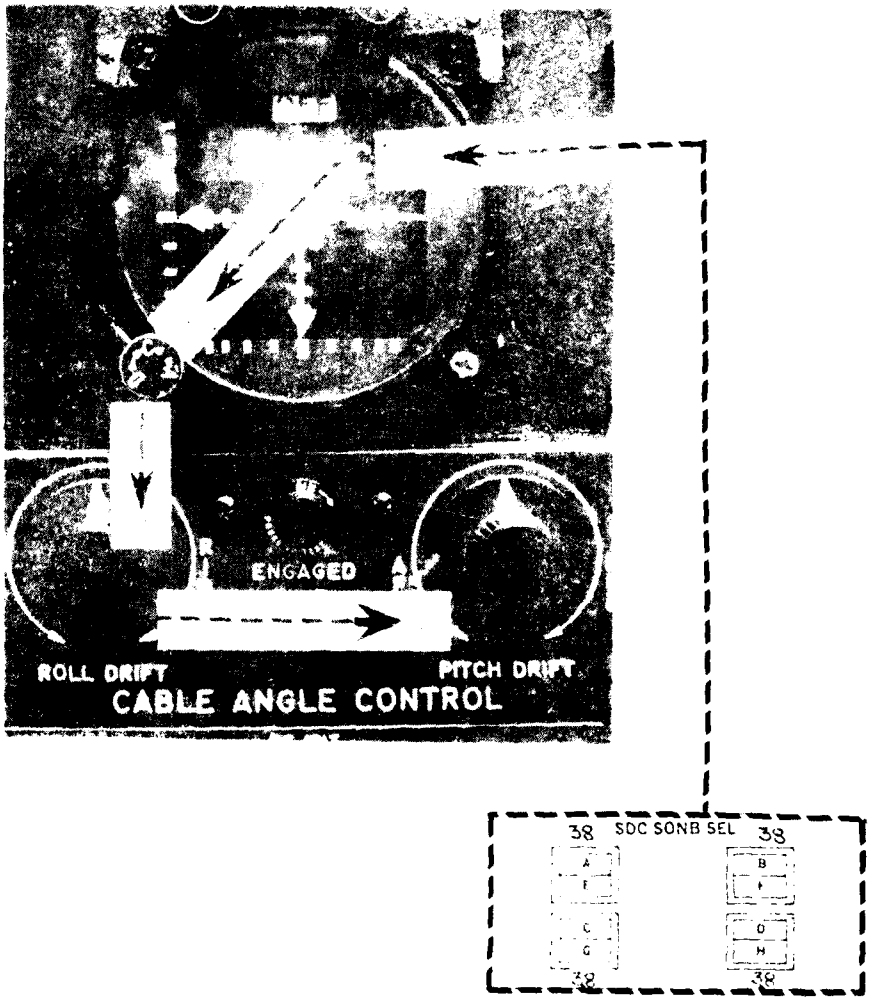
40.1 ACTION
Set ROLL DRIFT knob to _____ (arrow straight up)

41.1 ACTION
Set PITCH DRIFT knob to _____ (arrow straight up)

ROAD MAP

- With your finger, trace the steps
- Recall (1) how to perform, (2) systems response
- Look up answers if you need help
- Keep practicing until you can describe steps without error or hesitation

Item 39: Hover Indicator.....
40: ROLL [illegible] Control.....
41: PITCH [illegible] Control.....



GO TO PAPER MOCK-UP

- Step through all items
- Touch where each action and response takes place
- Recall exact action for each item

Congratulations, you have learned to perform the 41 checklist items for the Sensor System Pre-Flight.

At this point you should assure mastery of the checklist by:

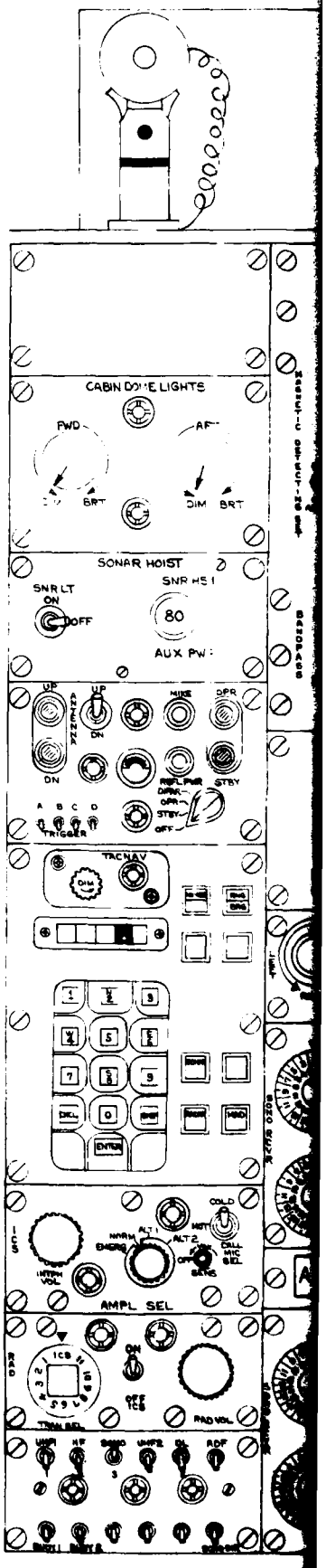
First, practicing the checklist on the Paper Mock-Up until you can go through all 41 of the items without hesitation.

Then, practice the checklist on one of the available aircraft until you feel prepared for a performance check by an instructor in the Cockpit Procedures Trainer.

Again CONGRATULATIONS on reaching this point in your training.

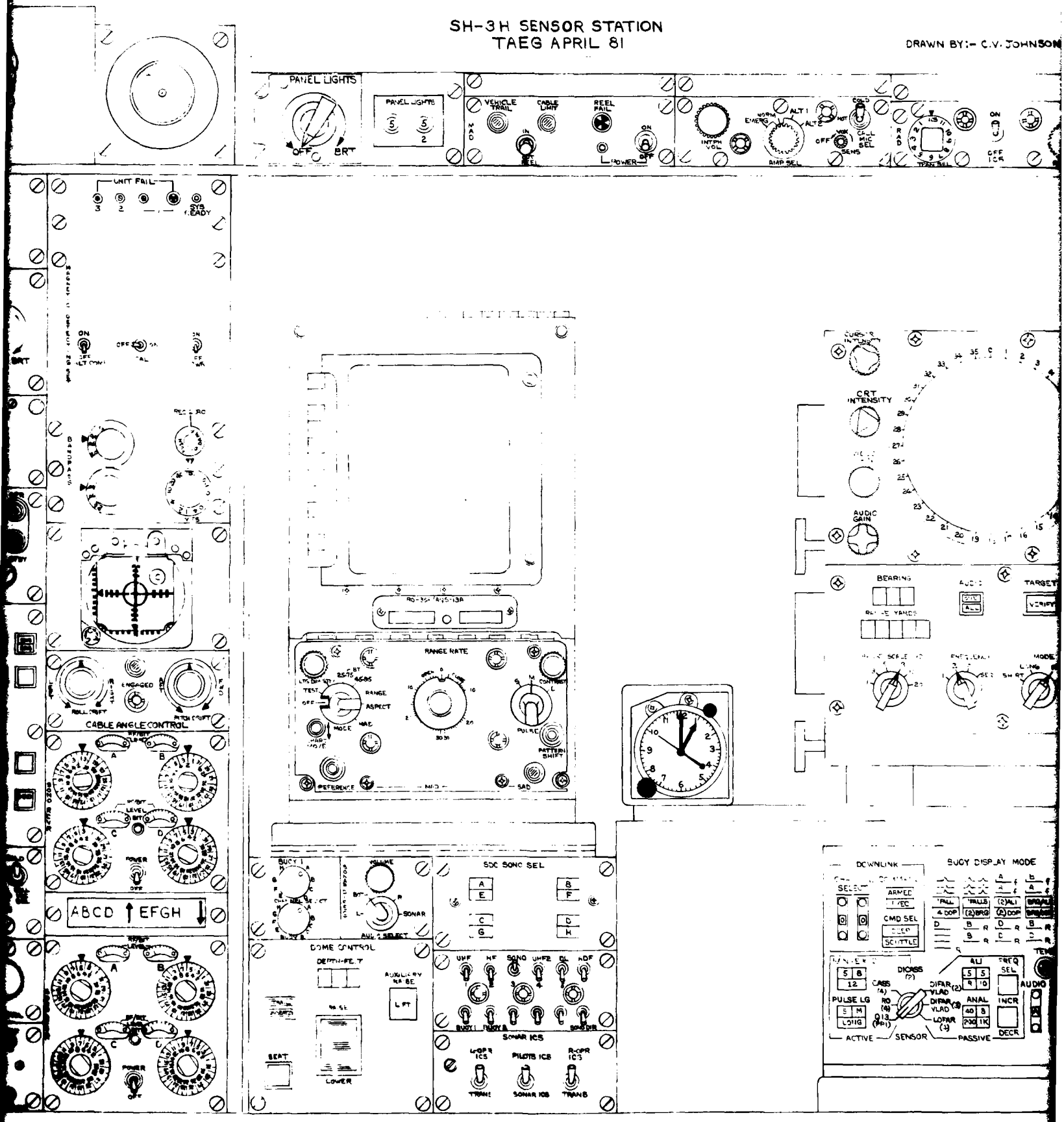
Initial Control Setting with SDC.

1. POWER switch(azimuth and range indicator).....OFF(EXTINGUISHED)
2. TEST switch A (azimuth and range indicator).....0
3. TEST switch B (azimuth and range indicator).....0
4. MTI THRESHOLD switch (azimuth and range indicator).....OFF
5. CURSOR INTENSITY control (azimuth and range indicator).....FULL CCW
6. CRT INTENSITY control (azimuth and range indicator).....FULL CCW
7. VIDEO GAIN control (azimuth and range indicator).....FULL CCW
8. AUDIO GAIN control (azimuth and range indicator).....FULL CCW
9. RANGE SCALE-KYDS switch (sonar receiver).....8
10. FREQUENCY switch (sonar receiver).....2
11. MODE switch (sonar receiver).....PASSIVE
12. CURSOR POSITION control (sonar receiver).....AS SET
13. MODE switch (recorder).....OFF
14. RANGE RATE control (recorder).....0
15. PULSE switch (recorder).....M
16. CONTRAST control (recorder).....MIDPOSITION
17. POWER circuit breaker (sonar transmitter).....UP(ON)
18. SDC PROCESS MODE selector switches channels A thru D.....OFF
19. SDC DOWNLINK CHANNEL SELECT switches.....0
20. SDC SENSOR switch.....
21. TRANS SEL switch (transmitter selector panel).....ICS
22. ICS ON/OFF switch (transmitter selector panel).....
23. PAD VOL control (transmitter selector panel).....3/4 TO FULL CW
24. INTPH VOL control (ICS master control panel).....
25. AMPL SEL switch (ICS master control panel).....
26. MIC SEL switch (ICS master control panel).....COLD
27. Receiver selector panel switches.....OFF
28. SONO switch (receiver selector panel).....ON
29. L-OPR switch (SONAR ICS transmit selector panel).....ICS
30. R-OPR switch (SONAR ICS transmit selector panel).....ICS
31. PILOTS/SONAR ICS switch (SONAR ICS transmit selector panel).....PILOTS ICS
32. UHF 2 switch (cockpit console).....
33. PANEL LIGHTS knob (sensor operators console).....
34. POWER switch (ABCD sonobuoy receiver panel).....
35. A,B,C,D channel switches (sonobuoy receiver panel).....
36. POWER switch (EFGH sonobuoy receiver panel).....
37. E,F,G,H channel switches (sonobuoy receiver panel)
38. A/E, B/F, C/G, D/H pushbuttons (SDC SONO SEL panel).....
39. Hover indicator.....
40. ROLL DRIFT control (cable angle control panel).....
41. PITCH DRIFT control (cable angle control panel).....



SH-3H SENSOR STATION
TAEG APRIL 81

DRAWN BY:- C.V. JOHNSON



SH-3H SENSOR STATION
TAEG APRIL 81

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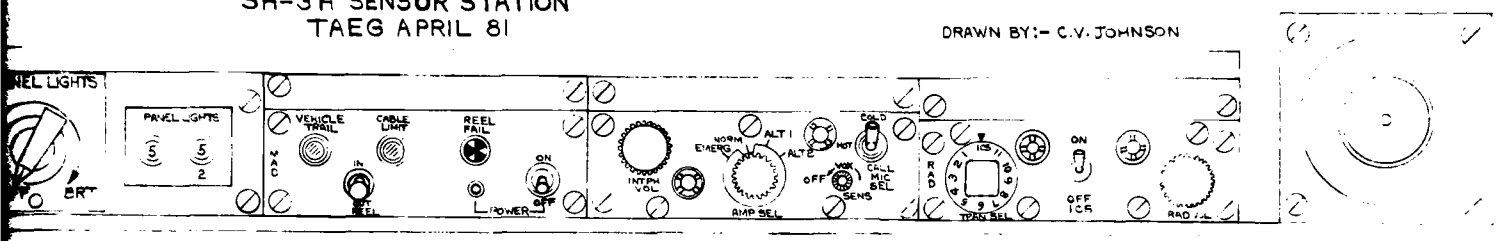

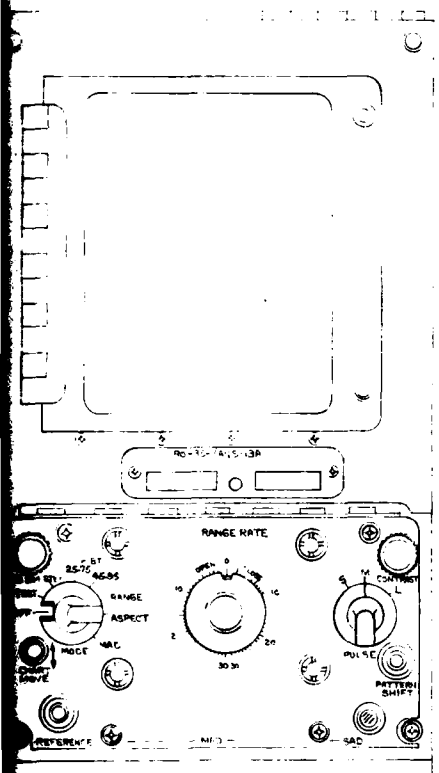

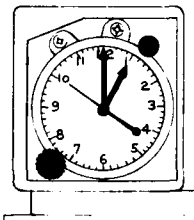

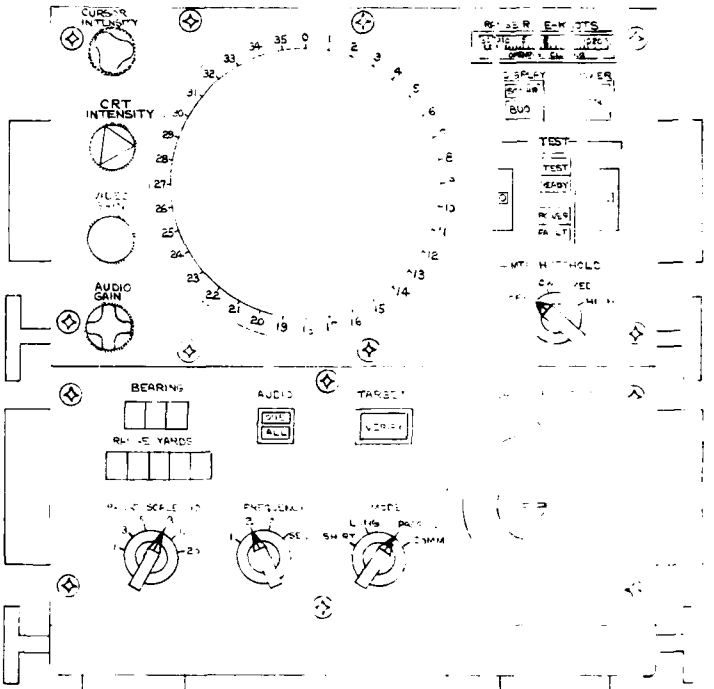

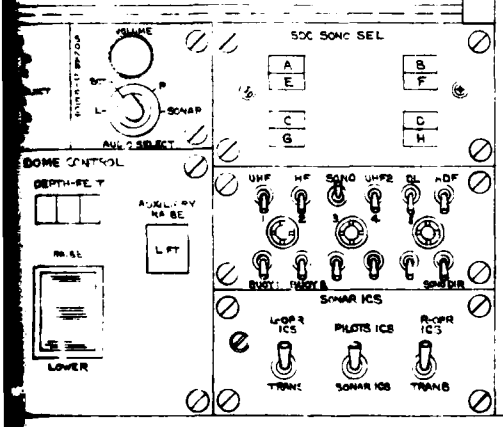

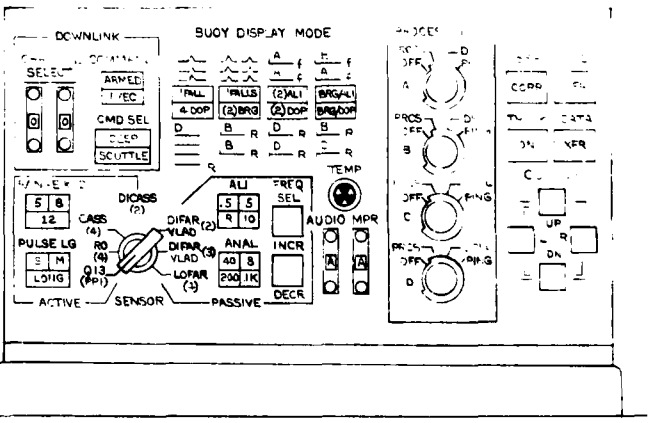

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